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Progress of the Silver-Lead Metallurgy of the West, During 1874.*

BY A. EILERS.

THE year 1874 marks a decided advance in the metallurgy of the West, in two directions. On the one hand, the technical management has been very materially improved, and on the other, the production has been largely increased over that of the previous year.

The technical improvements of greatest importance are the introduction of condensation chambers, or flues, at several works, and the further treatment of the lead-matte produced in the ore smelting. These two are of general importance, and although by no means introduced at the majority of works, their adoption at the few where their great importance has begun to be understood will no doubt bring about their universal introduction. To these may be added a third step forward, which for some localities is vital enough, though for others it must still remain doubtful whether it is to be regarded as an improvement or not. This is the introduction, at several works in Utah and elsewhere, of water-jackets, in addition to the water-tuyeres used heretofore.

Finally, the year 1874 has witnessed the successful introduction, in one Territory, of the Ziervogel process, by means of which argentiferous and auriferous copper-mattes, heretofore sent to England and Germany for further treatment, are now deprived of their silver in the most satisfactory manner *in loco*.

Of contrivances for the purpose of collecting the dust and condensing the fumes, two deserve special attention. These are the long flues built by the Richmond and Eureka companies at Eureka, Nev., and the peculiar chamber constructed by Mr. AYRES, of the Waterman Smelting Works, at Stockton, Utah.

The flue at the Richmond works is 800 feet long and ends in a wooden stack, 40 feet high, which stands on the side of the mountain behind the works, and the top of which is about 200 feet higher than the charge doors of the furnaces. It receives the fumes from three large furnaces, which smelt 150 tons of ore (mostly fine) per day. The 250 feet flues along the back of the furnaces and thence to the hillside are constructed of strong sheet-iron, plates of which are riveted together in the shape of a pentagonal prism, the two upper corners being slightly rounded off. By means of iron rods this part of the flue is suspended horizontally from wooden trestles, with the sharp angle downwards. About 4 feet below the lower extremity of the flue, a car track runs along the entire length. At intervals of a few feet, small sliding doors are inserted along one side and at its lower edge, so that by opening the same the dust can be drawn into the car below. The size of the flue in this part is amply sufficient to receive all the fumes. The accompanying sketch, Fig. 1, shows the size as well as mode of construction.

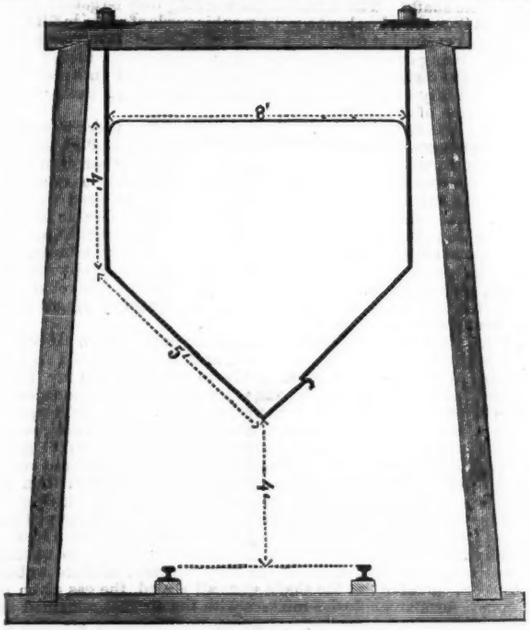

Fig. 1.

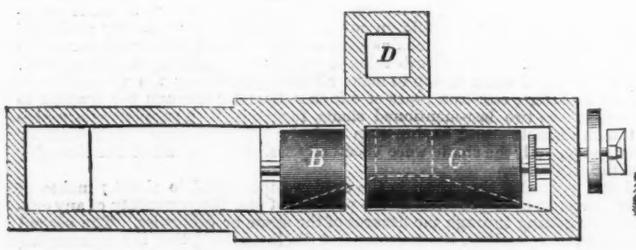

Fig. 3.

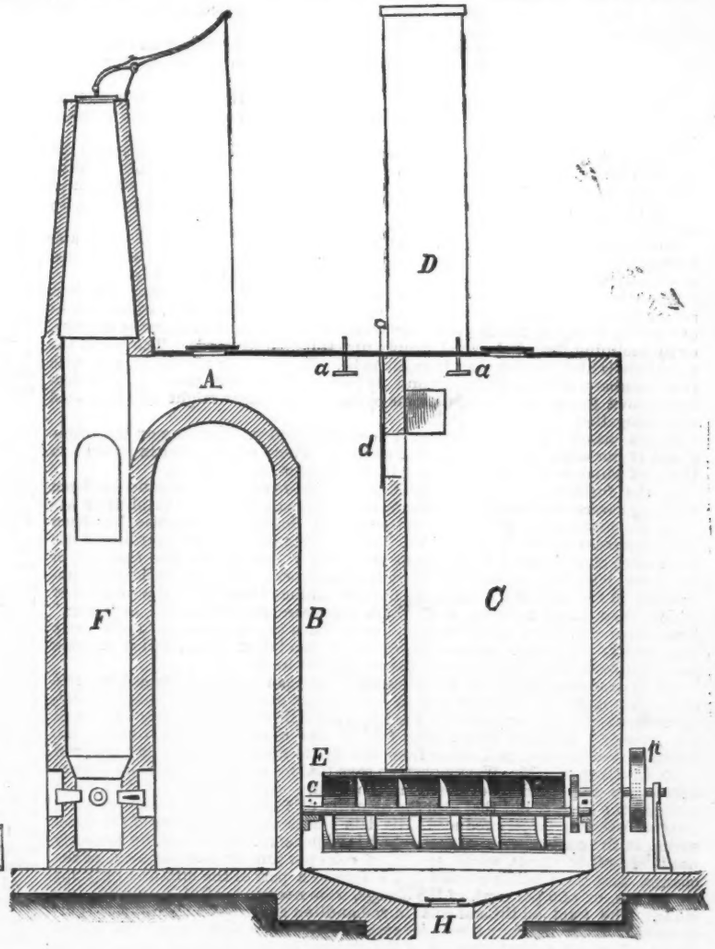

Fig. 2.

Further on, where the canal enters under ground, it is still larger, being 9 feet wide on top and 8 feet deep; but from this point on all the way up the hill to the wooden chimney, it is simply a culvert in the ground, without lining of any kind, and closed on top by a sheet iron cover.

In 1873, the total loss at the Richmond works was 20 per cent. of the assay value of the ore; in 1874, after the flue had been put up, the loss was reduced to 12 per cent., of which a large proportion is accounted for in the speiss. Only the first 250 feet are cleaned frequently; the portion under ground requires this only at long intervals. Yet in the sheet-iron portion alone there are saved from 9 to 10 tons of dust per day, when the three furnaces are run-

* A paper read before the American Institute of Mining Engineers at the New Haven Meeting, February 1875.

ning. The deposit here obtained assays invariably higher in the precious metals than the ore smelted, and, if we assume its value as only $55 per ton, it is easily seen what an immense saving is brought about by this simple contrivance.

The Eureka flue is also 800 feet long and constructed of galvanized sheet iron throughout.

The condensation chamber at the Waterman Works, near Stockton, Utah, is substantially represented by the accompanying cuts. (Figs. 2 and 3.) At the time of my visit to the works the furnace was in blast, and it was therefore impracticable to obtain dimensions inside of the chamber. Some of these were, however, furnished to me afterwards by Mr. GEO. P. LOCKWOOD, who superintended the smelting works at the time. The accompanying cuts show approximately the construction of the chamber, which is partly novel, at least as far as the use of the cylinder with Archimedean screw is concerned. In the sketch the letters represent:

F.—Shaft-furnace.
A.—Flue from furnace to chamber.
B.—Smaller compartment of chamber.
C.—Larger " " "
D.—Chimney.
E.—Archimedean screw in sheet-iron cylinder, covered with tar.
b.—Axis of cylinder, revolved by pully, *p*, on the outside of chamber and gearing inside.
H.—Discharge-valve in bottom of chamber.
d.—Slide-valve in partition wall between the two compartments, opened when the chamber and cylinder are cleaned.
a, *a*.—Revolving water jets, to keep the sides of the chamber wet.
c.—Level of water in bottom of chamber and cylinder.

In starting the furnace, *F*, the chamber is cold, and there is an insufficient draft through the chimney, *D*, as well as danger of explosions from the flaming furnace. Therefore, the top of the furnace is at first kept partly open. In from 8 to 12 hours the chamber is sufficiently warmed, and the flaming of the furnace has ceased so much that the top of the furnace can be closed and the gases directed through the chamber. Passing through *A* and *B*, there is no escape, except through the revolving cylinder *E*, in which, as two-thirds of its size are immersed in water, the flames are thoroughly cooled, and the dust precipitated either in the water or on the walls of C.

The walls of the two compartments of the chamber are cooled and kept wet by the jets *a a*, which throw water against them in a continuous shower. The uncondensed gases then pass off into the chimney *D*.

The cylinder in this chamber revolves 65 times per minute, when in action. The velocity imparted to it must of course be commensurate with the quantity of gases evolved from the furnace.

The bottom of the chamber slopes from all sides to the discharge-valve, *H*, through which the accumulated dust is drawn off every 24 hours into settling tanks outside of the furnace building. From these the clear water is drawn off every 12 hours. The bottom of the condensing chamber is again filled, by means of a hose, after every cleaning.

To keep the water at the level *c*, an escape is provided, to run off the water brought in continually by the jets *a a*. The roof of the chamber is constructed of slightly arched ⅛-inch boiler iron plates, which are laid on loosely.

There are several improvements, which suggest themselves for this chamber, as, for instance, some way of preventing the settling of dust in *A*, which can be effected by bringing the top of the arch under *A* to an angle of about 45 degrees, or by inclining the whole canal steeply upwards or downwards. The size of the chambers is also smaller than it ought to be. In fact, I do not doubt, that with two chambers, at least 16x16 feet and 25 feet high, to be cooled by sprinklers from above, the no doubt troublesome cylinder and screw might be dispensed with altogether.

As the chamber is now, however, it does very good work, saving on the whole about 11 per cent. of the ore smelted as dust. There are no smelting works in Utah, of which as favorable a record in this respect can be given.

In the further treatment of the first or lead-matte, a beginning has been made by several works in Utah, where an increased quantity of sulphurets has been encountered as the mines advanced in depth. Lead-matte has been made for years in the West, and the total loss incurred by disregarding it has been large enough, as I have shown in a former paper; but the amounts of silver and lead thus squandered at individual works were not sufficiently important in the eyes of the inexperienced to induce them to treat a product of which they knew nothing, and which for years was designated as "iron." Since, however, more abundant sulphurets have begun to occur in the ore a very largely increased production of matte has taken place, which in some cases has been equal by weight to the product of lead.

Mr. WARTENWEILER, of the Winnamuck, first began in Utah to roast his matte and to use it in the ordinary way in subsequent ore smeltings as a very welcome flux. Others, and notably the Sheridan Hill works, have since followed his example. All have found that besides the advantage of extracting the larger part of the lead and silver from the matte there are other very material gains in doing so. Mr. WARTENWEILER says that by using the matte he did not only lessen the quantity of costly iron-ore flux from 20 per cent. to 3.5 per cent. of the charge, but that also the quantity of fuel used per ton of smelting mixture was very largely reduced. His data permit the calculation of the exact saving in the consumption of fuel, which is 28 per cent. of the quantity formerly used. In other words, while 409 lb. of coke per ton, or 20.4 per cent. of the charge, were used before roasted matte formed a part of the mixture, only 293 lb. per ton, or 14.6 per cent. of the charge, were necessary after the change was made. The total additional cost in re-handling and roasting the matte (portions of it three and four times) is certainly not more than $4 per ton. Eventually, of course, a small fraction of the original bulk remains as argentiferous and often auriferous copper matte, which is not further treated and sold in that shape.

The introduction of water-jackets instead of fire poof material used in the smelting zone of the shaft furnace is another step forward, which, at least for Utah and Cerro Gordo, where fire brick or other refractory material is excessively high, cannot be regarded as of doubtful merit. These jackets are simply hollow iron castings, occupying about 3 feet 6 inches in height on the outside of the hottest part of the furnaces. The water-space is from 2½ to 4 inches. The tuyeres were first cast in one piece with the jacket-sections where the furnaces were round, or the side and back-castings where they were rectangular. But it was soon found far better to leave openings and insert wrought iron tuyeres. For when a cast tuyere cracked, which was frequently the case, the whole section or side of the jacket, as the case might be, had to be removed, which is no easy matter with a furnace in blast. Otherwise the appliance proved very satisfactory, the increase in the consumption of fuel being insignificant; and there is no doubt that it will be largely used in the future. Where the water used holds appreciable quantities of mineral in solution, a form of the jacket preferable to the present one will undoubtedly be simple cast plates, provided with a water trough at the lower extremity to carry off the water which is continually forced in many small streams against the top.

The introduction of the Ziervogel process for the extraction of silver from copper mattes at the works of the Boston and Colorado Company at Black Hawk, Colorado, has been a perfect success, both technically and financially.

The increase in the production of argentiferous and auriferous lead in the far West over that of the previous year has been large. This was not so much due to the erection of additional works as to better management in keeping a number of those in existence regularly at work. The following is a comparative statement of the production during the years 1873 and 1874:

PRODUCTION OF WORK-LEAD.

	1873.		1874.	
Where produced.	No. tons.	Gold, silver & lead value.	No. tons.	Gold, silver & lead value.
Nevada	12,812	$5,063,235	11,516	$3,865,419
Utah	9,566	2,901,191	15,474	4,332,720
California	4,000	920,000	5,095	1,680,000
Montana, Colorado and other sources (estimated.)	300	144,000	375	180,000
	26,678	$9,028,426	32,460	$10,058,139

Underground Fire in the Wynnstay Colliery.*

THE colliery at which the fire occurred, which is the subject of the present communication, belongs to the New British Iron Company, and is at Ruabon, North Wales. It is of considerable extent, being capable of producing an output of a thousand tons of coal a day. It comprises a "winning" of between 500 and 600 acres, under which five separate seams of coal are wrought in conjunction, to the same shafts. The extent of the working may be gathered from the calculation that it would take about a million cubic yards of water to fill them.

The coal is worked somewhat after the Lancashire method, levels and crossings at right angles being driven, of three to five yards in width, to the extent of the boundary of the district of work, thus cutting the coal into a series of parallelograms about fifty by thirty yards, and it is then worked back "homewards" in the direction of the shafts.

At the time of the catastrophe to which I am about to refer, there was an underground high-pressure steam-engine, which drew the coal out of the deep workings, the steam for which was brought from the surface by cast-iron pipes, and the exhaust steam was conveyed thence by similar pipes into a return air-course, where the fire occurred, and which will hereafter be referred to as the region of the fire. The ventilation is produced by a powerful double furnace, close to the upcast, and the quantity of air passed through the workings, when the colliery was in ordinary work, was over 200,000 cubic feet per minute. The coals give off a large quantity of carburetted hydrogen gas, especially the two upper seams, and, consequently, the workings, being of a dangerous character, have to be conducted with great care and caution. The quantity of gas given off is generally from 500 to 800 cubic feet per minute.

In January, 1874, a fire was discovered about mid-day in the return air-course, near to where the exhaust steam was delivered, and it is supposed to have originated spontaneously. Every effort was made to suppress the fire, but it nevertheless continued to increase rapidly and at length became unmanageable, so that there was no alternative but to seal up the shafts. A scaffold was accordingly placed in each shaft as low down as practicable, and all were covered over with sand and clay to make them air-tight; a cast-iron pipe of 6 inches diameter was left through those of two of the shafts, furnished with light valves opening outwards. One of the downcast shafts was first closed, and then the other and the upcast shaft were stopped simultaneously. Before leaving the workings, stoppings were put in, and the ventilating furnace was damped out.

It is scarcely necessary here to explain that 5 vols. of air must be added to the carburretted hydrogen gas before it becomes explosive; that it so remains until the air exceeds 14 vols. to 1; and that the most explosive mixture is about 9 vols. to 1. As soon, therefore, as the shafts were all sealed, the gas given off from the mine might form an explosive mixture with the air that remained unconsumed by the combustion of the fire. At the end of 72 hours, a sharp explosion occurred, considerably disturbing the scaffold on one of the down-cast shafts, sucking down that on the other and blowing off, with considerable violence, that on the up-cast. The expediency of flooding the workings with water was then fully discussed, and was thought by some to be the only means by which the colliery could be recovered. But preparations were made to repair and strengthen the scaffold on one shaft, and to put "hanging scaffolds" on the others, suspended by chains from strong baulks of timber laid across the top of each shaft. Several yards thick of clay were "puddled" on each scaffold, with a stratum of water on top to make all air-tight, taking the precaution of leaving, as before, cast-iron pipes of 6 inches diameter through the scaffold to the tops of the two last-mentioned shafts, furnished with supplementary pipe of 1 inch diameter, and having stop cocks by which to ascertain pressure by water gauge. All the shafts were effectually sealed at the end of the sixth day after the explosion.

At first we loaded the valves on the outflow pipes equal to about 7 inches of water gauge, so as to prevent, by the pressure of gas, the possibility of any current of air getting through the fissures of the strata or otherwise. The second day after the re-sealing, the welcome fact disclosed itself, that the gas escaping from the valves would put out the safety-lamp when held close to it, but would fire in the lamp when held at sufficient distance to allow of the necessary mixture of air for the purpose. By analysis we found roughly it consisted principally of carburretted hydrogen, 10 per cent. carbonic acid, with traces of carbonic oxide, nitrogen and oxygen.

Every change in the mine was carefully recorded. A register was kept twice daily of the atmospheric pressure indicated by the barometer, the pressure indicated by the water gauge, the temperature of the shafts, together with occasional analysis of the escaping gases. A registering thermometer was let down by copper wire through the "outflow" pipe, and the temperature taken at different depths; in the upcast, chiefly at a depth of 245 yards, opposite to the return air course from "the region of the fire," and in the "downcast," at a depth of 200 yards. Early in March the scaffold in the upcast shaft fell

* Extracts from a paper read by Mr. GEORGE THOMPSON, before the Iron and Steel Institute of Great Britain.

down the pit, but the shaft was re-sealed without delay, and the effect passed off in the course of a week. It is worthy of remark how sensible the outflow of gas is to the changes of the barometer; and when a sudden rise occurred in the barometer, for a time the water gauge would indicate an inward pressure until the gas given off by the mine gradually increased the pressure again; a forcible illustration of the extreme importance of minute and constant barometrical observations to the managers of "fiery" mines, more especially when the workings are extensive.

In May, when the temperature in the upcast shaft had remained nearly stationary for several weeks, it was deemed not imprudent to attempt a re-entry of the mine.

This was a formidable undertaking, in view of the fact that some million cubic yards of carburetted hydrogen gas were pent up in the workings, and that, although the fire might virtually be extinguished, yet, probably, a high temperature existed, and there might be smouldering fire in some of the fissures, which, on the admission of fresh air, might rekindle. The colliery manager (Mr. RALPH DARLINGTON) suggested the plan of first descending the upcast shaft by means of a loose scaffold, open the upcast, and one downcast, and so restore the ordinary ventilation as far as the explosion had left the currents undisturbed, except through the "region of the fire."

A loose scaffold was provided, fitting as closely to the sides as practicable and consistent with its moving down the shaft, and suspended by a strong wire rope passing over a pulley. A strong wooden box was fixed across one side of the shaft, and connected with an air tunnel into a chimney or cupola 12 feet diameter. Cast-iron pipes, 14 inches diameter, were passed through the scaffold and furnished with throttle valves, having handles to open and close them as required. Tubing of canvas, on iron hoops 2 feet diameter, was joined on to the wooden box from each pipe, and a length of 20 yards at a time was placed on the pipe, and gradually drawn off as the scaffold descended, and by taking care that the joinings of the tubing on the respective pipes were at different depths and made alternately, both pipes were never closed at the same time, unless it was found necessary to do so for special reasons.

Another tube of canvas and iron rings of 3 feet 6 inches diameter was also fastened to the box, and connected with a wooden frame on the movable scaffold; this tube was also in lengths of 20 yards, which were coiled on the frame, and opened out as the scaffold descended. Brattice cloth was nailed round the edge of the scaffold, which prevented any inflow of air. A separate rope passing over the pulley was taken to the drum barrel of a winding-engine close by, the steam-boilers of which having been removed to a distance of 200 yards, so as to avoid any danger of the gas from the mine being ignited by the boiler fires; and by this rope the men passed up and down, and the necessary materials were lowered for the operations. A steam jet was introduced into the air cupola, so as to increase the draft, and the exhaust steam from the engine was also passed through it.

In order, also, to avoid the necessity of taking even safety-lamps into the shafts, we arranged a series of reflectors, consisting of bright tin plates, fastened to frames of wood, held at the top and on the scaffold, and by that means the whole of the operations were performed without any artificial light whatever. Thus the men gradually descended the shaft, and were able to regulate the outflow of the gas from the mine and the purity of the air on the scaffold.

The whole of this work was successfully completed in about three weeks from its commencement, and we then proceeded to unseal the down-cast shaft, and descended the shaft, the ventilation being in a measure restored. We also placed a water-tank on the surface connected with a water-works main, and carried water-pipes from it down the shaft, 2 inches diameter the first 100 yards, 1½ inches diameter the second 100 yards, and 1 inch diameter the remaining 110 yards to the lower "mouthing," and thence along the roadway; the pipes being proved to a pressure of 1,000 lb. to the square inch, and having taps and hose pipes by which to play water, when necessary, upon the *débris* in the roads or elsewhere.

We found that the fire had raged with extreme violence all round the engine, the iron work of which had, at one time, evidently been nearly at a white heat. All appearance of fire, however, had now disappeared, and the temperature at that place was only 85 deg. Fah. Having put in a second stopping, we continued our explorations, playing water, where necessary, on the fallen roof and rubbish, the temperature of which varied considerably. For about ten days no indications of fire were seen, and we had got along the roads around the "region of the fire," when a fall of roof occurred, which, on reaching the floor, burst into flames; the men played water upon it, but were immediately surrounded with so noxious a gas, that they were unable to hold the hose pipe, being struck down insensible as fast as they essayed the work. Two stoppings were then put in successively, during the construction of which one or two slight explosions occurred. The temperature then began to increase rapidly all round the "region of the fire," and we determined, without further delay, to put in a series of permanent and effectual stoppings in such positions as to thoroughly wall out the fire from any connection with the other workings. The engine was removed, and the "down-brow" abandoned, thus temporarily abandoning the deep workings.

It would have been impossible to accomplish this work successfully, but for the stopping which had previously been put into the return course at the upcast shaft, and which may be called the key to the position; this stopping we further strengthened, leaving through it a small pipe with a tap, by which to ascertain the pressure within and the composition of the gases.

Through other stoppings we left the water-pipes, also observation-pipes through two of them, and having disconnected the water, we connected the water-pipes with an apparatus which we constructed for the production of carbonic acid gas, by the decomposition of limestone with hydrochloric acid, and which, by these means, we forced at pleasure within the stoppings.

The apparatus for the production of carbonic acid gas consisted of two strong wooden boxes, 6 feet square by 2 feet deep, lined inside with sheet lead, so as to resist the action of the acid, with pipes and taps through which the acid is poured as required. There are also manlids through which the limestone (broken very small) is charged, and also pipes with plugs from bottom of boxes for discharging the residuum (chloride of calcium) after the decomposition of each charge; cast-iron pipes with separate valves, and a valve common to both, for conveying the gas as produced; and, lastly, small pipes, with taps allowing the air to be expelled from the boxes, and also for attaching a mercury gauge during the operation to ascertain the pressure of the gas. Whilst one box was giving off gas, the other was being charged; thus a continuous flow could be kept up.

The charge was about 4½ cwt. of limestone, and, the "manlid" being fastened down, the hydrochloric acid was poured in, and the mercury gauge on one of the small pipes was watched, so as to keep the pressure tolerably equable (usually about 3 inches of mercury). We found generally that 120 gallons of the acid (of 1·12 strength) decomposed the charge of limestone, which, by calculation, gave us 120 cubic yards of gas. The gauge indicated when the charge was exhausted, and then the valves, &c., were shut and the residuum withdrawn, and the operation repeated as long as needful. Altogether we put down about 6,000 cubic yards of carbonic acid gas, and we believe that it had a very important effect. The gas collected from all the pipes through the different stoppings from time to time would not support combustion, and the temperature within the stoppings was very moderate. [It may be interesting to state here that, in analyzing the gases within the stoppings, we found that a mixture of 5 per cent. of carbonic acid with 25 per cent. of atmospheric air, and 70 per cent. of carburetted hydrogen, extinguished flame instantaneously. On adding more air to the mixture, and applying a match, it would not explode; but when pure oxygen was added, and a match applied, the mixture exploded gently. Further, when this gas was deprived of the CO_2 by means of caustic soda, and a match applied, it would burn when issuing into the open air.]

The pits were sealed up from February to end of May, a period of four months. The downcast shaft was re-entered at the beginning of July, and we commenced to draw coal again about the end of August. No change whatever has appeared at any of the stoppings, all of which are quite cool; and the temperature within that in the main level is only about 70 deg. Fah.

Mr. HACKNEY said that in listening to the paper he had been struck by what had seemed to him the very dangerous way in which the work was carried on. The method that appeared to him to have been adopted in this case was the very old one of simply closing up the mine, and leaving the fire to take care of itself. If the old plan had been adopted of closing the shaft, using some simple apparatus to produce a mixture of nitrogen and carbonic acid, and blowing those gases in, mixed with steam, and possibly also a shower of water to send the gas down as damp and cold as possible, the working would have been cooled down much sooner without any of the possibilities of explosions that had been described. He merely wished to call attention to the old scheme of Mr. GURNEY, and he thought there could not be a better means of putting out a fire.

Mr. MARKHAM believed that Mr. GURNEY's scheme had proved a complete failure, from the difficulty of producing pure carbonic acid. It was desirable that colliery owners should attach more importance to putting out the fire in in the first instance, instead of closing the pits with a large quantity of air, as a very small quantity of air was sufficient to keep a fire in active operation for a very long time.

Mr. THOMPSON replied to the idea that the fire ought to have been put out by carbonic acid gas made over a fire on the old plan: the meeting must bear in mind that there was a very large quantity of air passing through the works, the upcast shaft being 15 feet in diameter, and that a large quantity of air would, in a very few days, have set the whole of the coal on fire. The fire was, no doubt, caused by sending exhausted steam through an old air course, the coal containing bands of pyrites. With respect to using carbonic acid in the old way, he wished to state that it had been tried in a colliery in his neighborhood, and failed, owing, he believed, to the fact that it could not be used without taking down a certain amount of atmospheric air, and the gas being taken down at a very high temperature, both of which were very bad.—*Iron.*

Notes.

A Sliding Scale for Colliers' Wages.—Mr. THOMAS BRASSEY, M.P., having been requested by some leading members of Trades Unions to advise them as to the prospects of the South Wales colliers, has made a report, which was published in the *London Times*. The question of the fluctuations of wages and profits in collieries and the dicta of political economists on the subject, are treated at length, and in the usual manner, by Mr. BRASSEY. He says: "I have reason to believe that the coal owners in South Wales feel deeply the interruption of their former cordial relations with their workmen; and that they are prepared as soon as the men have returned to work, to make a proposition for a sliding scale of wages, varying with the fluctuations in the price of coal, and other circumstances. The adoption of a well considered scale of wages, based on the selling price of coals, will obviate the risk of the recurrence of the present deplorable struggle."

Arsenic in Cornwall.—The demand for arsenic continues to be good, and in several places where there are known to be large mundic lodes it is proposed to commence new works. It is generally expected that some of the adventurers will not only mine for mundic, but will also refine their arsenic, so as to combine both profits. The present production of refined arsenic is about 6,000 tons per annum, and a very large portion of this is used in the manufacture of dyes. Germany is one of our best foreign customers. Should the demand continue for a reasonable time there is no doubt the production will largely increase; meanwhile the refiners are managing matters pretty much as they please, the manner in which the miner sells raw arsenic being about the most unbusiness-like proceeding it is posible to imagine. The arsenic after it is swept out of the flues where it has been deposited is put into heaps, after which the weight is estimated, and notice is given of sale. The refiners' agents attend on a certain day, and make their offers. The value of the arsenic, of course, depends on the percentage of fine arsenic it contains; but this is rarely ascertained the buyer trusting to his judgment of the quality, and the seller trusting to chance as to what he shall get offered him. As the buyers are few in number, there generally is some private conversation around the corner before offers are made, but sometimes an outsider puts in an appearance, and this occasionally leads to an advance of 30 per cent. in the price.

Re-Carbonising of Steel.—We recently had the pleasure of witnessing a series of novel experiments in the re-carbonising of steel, the result being in every detail highly satisfactory. The Cardiff Engine Works was the scene of the experiments, and the process of re-carbonising the steel was introduced by Mr. D. DRUMMOND, of Swansea. The material used is a nearly liquid composition, and Mr. Drummond simply placed it in the hands of the foreman of Messrs ELLIOT & JEFFREY, the proprietors of the works, with instructions how to use it. We will give one of the experiments. A common chisel, in use for chipping rivet heads, was placed in one of the smiths' forges and heated until it was burnt. This was repeated three times, until it was rendered quite useless for any purpose whatever. It was then placed in the composition, tempered in the usual way, and ground on the side of an old anvil, and violently struck with a chipping hammer. A piece of chilled iron was then cut, the edge of the chisel remaining intact, to the astonishment of the onlookers. The composition has the wonderful property of making bad steel good, and good steel nearly impregnable. An employer has only to get a tin of the compound, prepare the cutting portion of the chisel or turning tool, from inferior steel, and it will stand as well as if the tool had been made from the best steel; or if the best material is used, the tools will last for a surprisingly long period. The composition, we have been informed, was tried at Brynacae Colliery last week, in the presence of Messrs. DUNN and FRANCIS, mining engineers. A steel-set chisel was treated in the usual way. A 16-lb. sledge hammer then drove it through a 2-in. bar without turning the edge. Two chisels were subsequently made by Mr. DUNN's order out of one bar of steel, one of the chisels being treated with Mr. DRUMMOND's mixture, and the other being tempered in the usual way. The latter, after cutting a hole 6 inches in depth, was quite unfit for use, whereas the other cut five holes of various depths, from 6 in. to 3 ft. 5 in., and was then none the worse for wear.—*South Wales Daily News.*

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The Vested Rights of Ignorance.

WHEN we talked of the great advantages resulting to the cause of mining by the use of the diamond drill in exploration, we were, it appears, somewhat hasty and partial. Like most stories, this has two sides and we looked at but one ; here is the other, viewed from the standpoint of a virtuous "operator in mining stocks."

"The system which is being inaugurated of boring into ore bodies with diamond drills to see what they contain, is causing a great deal of dissatisfaction among stock operators. It is a dead open and shut, and speculators say that it is like betting against loaded dice. When a mine is prospected by actual working and rich ore is struck, or a horse comes into a ledge, the fact generally leaks out through some of the workmen, and it gives outsiders a chance to take advantage of it. But when a diamond drill is run in fifty or a hundred feet ahead and the core kept and secretly assayed by the officers of the company, the public are completely at their mercy. One prominent speculator stated on Saturday that he would not operate in the stock of any mine that used a diamond drill for prospecting."

We must confess, in the classic language of "the street," this is "rather rough" on the "operator," but then he can console himself with the recollection of the countless "turns" he has made in the past out of the simple-minded investors in the long list of "non-dividend mines," and he can take courage for the future in the fact that about five men (including mine managers) in six are firmly convinced that "even a little knowledge is a dangerous thing," and they will wait fifty years—if they live so long—before convincing themselves of the value of any inovation, be it even the diamond drill for exploring ; they are so conservative—this is the polite way of expressing it—that our enterprising "operator" will still have a chance for a few years to relieve the monotonous prosperity—and the plethoric purses—of capitalists with his innocent little tricks in stock gymnastics, such, for example, as those that appear to be a never-failing source of amusement to the festive citizens of Frisco, and the jolly old souls of London.

The New Motor.

THE quidnuncs of the daily press have found a congenial theme in the announcement of a new motive power, generated from air and water without the application of heat or chemical agents, and said to produce the "incredible" pressure of 20,000 lb. to the square inch. This pressure is not at all incredible. It could be obtained by hydraulic machinery from water alone, without using air to "generate" it. But the story, as told by the reporters, involves a "cold, damp vapor," acting expansively, like steam or hot air, and capable of running an engine at high speed. If the inventor (who, we hear, was in another line of business when he stumbled upon this happy idea, which he has spent many months or years in elaborating) chooses to permit his discovery to be described in such a way, he must take the consequence of being set down as a humbug, or a self-deluded visionary, by every one who understands the fundamental laws of mechanics and the meaning of English words. The writers of "screeds" in the daily papers, being notably deficient in both particulars, will, doubtless, continue to spread themselves in glittering generalities upon the subject. Nothing bewitches such philosophers like the chance to show something that baffles and confounds savans, revolutionizes science, contradicts experience, and sets at naught the multiplication table. "Because many new discoveries have been met at first with incredulity and superstition," they require nothing more than amazing absurdity to recommend a novelty to their respect.

We do not deny that this Philadelphia genius may have invented a useful machine for transmitting or transforming power. But he has certainly not invented anything which overthrows the mathematical relations and correlations of forces, by generating an enormously expansive vapor, without heat or chemical agents, from air and water. And the manner in which the invention is brought forward, with vague stories about the scientific gentlemen who have seen it and expressed their bewildered admiration of it, and the powerful capitalists who are pushing it, has every appearance of an operation on the credulity of the public.

Not that we doubt the story about the capitalists. They are never wanting to support these stunning novelties. It is the real discoveries in the arts, involving not the revolution, but only the moderate and reasonable improvement, of the methods of industry, that find difficulty in gaining pecuniary support. Perpetual motions, multipliers of force, abolishers of fuel, electric engines, water-gas—these things continue to draw in shoals of capitalists, as easily as if there were no such thing as scientific tests of mechanical practicability or economy.

When the gentlemen who are now engaged in secretly manufacturing miraculous engines of the new pattern, giving private exhibitions of them, securing patents in all civilized countries, and inspiring idiotic articles in newspapers, get ready to come forward openly and submit their novelty to thorough examination, it will be time to give it serious attention. Meanwhile, we are glad to hear that the strike in anthracite is practically over ; for we don't expect the "new motor" to affect at all the demand for coal. *

The Collapse of the Strike.

As will be seen in another department of this paper, the strike is practically over in the Wyoming and Schuylkill as well as the Clearfield bituminous region. It has been a severe lesson to the leaders of the Union and to the rank and file who have followed their counsel with so much mistaken fidelity and obedience. The loss to the men by this strike is greater than years of labor will repair. But they were aware of this fact long ago, and maintained their attitude, nevertheless, for the sake of what they thought was a principle which they could establish. This principle has been settled against them; and probably the battle will not soon be renewed.

We trust that the resumption of production will be attended with a reduction in the price of blast-furnace fuel. Our ironmasters are bravely endeavoring to adjust themselves to the new condition in which their industry is placed, and from which it is not likely to emerge by any other way than that of improved economy in the manufacture. The price of iron will not go up again to please people who cannot afford to sell it at low rates; it is the cost of iron which must be kept down; and the cost of ore and fuel are two elements that need to be reduced. Such royalties as $1 and $1 25, which were paid on mining leases in New Jersey and Pennsylvania in the flush times, cannot now be afforded. More care will be exercised in regard to the quality of ores purchased, and charges will be mixed so as to secure economy of fuel and superior quality of product. The collapse of the strike is a welcome contribution to this necessary series of improvements.

In this connection we would also express our pleasure at the execution of justice by Judge ORVIS, at Clearfield, upon the thirty-two miners recently found guilty of conspiracy and riot in connection with the strike. The six ringleaders, including the officers of the Miners' Union, received the sentence of a fine and one year's imprisonment. Thirteen of their associates were fined and imprisoned for sixty days, and the sentence of thirteen others was suspended, in consideration of the fact that they were misguided by their leaders. This will have a salutary effect throughout that region; and we wish it might be paralleled in the punishment of some of the outrages in the anthracite fields. Terrorism, arson, violence and murder have flourished long enough; and if peaceable citizens have any rights, it is time to make that fact appear, and to deal a final, fatal blow at the barbarism which has grown among us to such audacity. *

Toughened Glass.

THERE seems to be a good deal of unnecessary mystery attached to the phenomenon of the toughening of glass by peculiar "annealing," which has lately been made the basis of a new invention. The invention itself is likely to be very important and useful ; but the physical qualities on which it is founded are neither anomalous nor surprising. The toys of science known as "Prince Rupert drops" possess the same properties, though not in the same relative proportions, being made by a slightly different process. The "Prince Rupert drop," or "glass-tear," as the Germans call it, is formed by dropping melted glass into water, by which means a sudden cooling is effected, which results in a condition of great tension throughout the mass. This tension being relieved

suddenly at one point, by the breaking off of the "tail" of the drop, the whole flies into minute fragments. This experiment has been repeated thousands of times in lecture-rooms and parlors; but it seems that another peculiarity of the glass-tear is not so popularly familiar, namely, its toughness. This may be demonstrated to result from the same interior tensions as cause the phenomenon of breaking. Another element to be considered is the greater degree of crystallization of glass cooled in the ordinary way, as compared with sudden cooling.

Now this manufacture of glass-tears is not properly an annealing, but the opposite. It is a hardening process. And the new toughened glass now brought to public attention is not annealed; it is hardened. In this case, it is oil into which the glass is plunged for cooling; but the result is evidently a similar interior tension, similarly affecting the other physical properties.

Evidently the application of this principle may be indefinitely varied, so as to vary the quality of the product. Aside from the original constitution of the glass, (some kinds of which are more suitable for the purpose than others), the elements of the process susceptible of such variation are the temperature of the glass, the temperature of the hardening bath and the heat-conducting power of the latter. The second of these elements is likely to be very important, since it practically divides the process into two parts, a more rapid cooling, continuing until the glass and bath are at the same temperature, and a slower cooling afterwards. It will easily be seen how these conditions must affect the resultant tensions in the glass.

Professor EGLESTON said the other day at the Dover meeting, if we rightly recall his words, that the process of BASTIE, the products of which he exhibited, required special skill and care in the adjustment of these relations of temperature; and we have heard that some attempts to imitate it have been unsuccessful for want of accurate knowledge of these details.

The most important application of suitably hardened glass in mining and metallurgy will be, doubtless, its substitution for metal in parts of machinery exposed to chemical action, and particularly, as Mr. ROTHWELL pointed out at Dover, in lining the cylinders of pumps. We shall look with interest for the publication of the exact and thorough tests of this material upon which Professor EGLESEON is reported to have been long engaged; and we consider its qualities all the more likely to be useful, because they are not, in our opinion, astounding. *

Seventh Annual Convention of the Society of Civil Engineers.

THE American Society of Civil Engineers, which now numbers about five hundred members, held, on the 8th and 12th inst., at Pittsburgh, Pa., its Seventh Annual Convention.

Though this is an old society, it is but six or eight years since a large accession of young, highly educated and energetic members infused new life into it. For many years previous to this it had been in a state of syncope or suspended animation. During the last four or five years the membership of the society has largely increased, the standard for admission to it has been raised, and its usefulness and influence greatly extended; no further proof of this need be cited than the fact of the appointment, by the President of the United States, at the suggestion of this society, of a committee to examine into the question of the strength of iron and steel. The influence of the society in all professional questions, and in the elevation of the professional standard, is now fully recognised, and the reception always accorded it wherever it holds its Annual Convention, is a gratifying proof of the public appreciation of its objects and work.

The meeting of which we now make mention was one of the most successful and enjoyable the society has ever held. It was participated in by some eighty or ninety of the members, and was fortunate in having magnificent weather, and in the great variety and importance of the engineering works examined. Many of these were subjects of especial interest to our mining engineers, and we propose to devote some space to a notice of the chief features of interest in a few of them.

Pittsburgh, more than any other city in America, affords subjects of metallurgical interest in its steel and iron works, its DANES' Puddling Works, and its BLAIR'S Iron Sponge Works, and in its bridge, locomotive, and other machine works. These latter form, as it were, the common ground between the civil and mining or metallurgical engineers; that this branch of the profession has been somewhat neglected by the civil engineers was made the occasion of some very appropriate remarks by Mr. HOLLEY, in response to the toast "The Institute of Mining Engineers;" we may put them under the head of

CO-ORDINATE BRANCHES OF ENGINEERING.

"If there are two professions in the world which should be bound together by mutual professional interests, they are those which represent the producers and the users of metals. They should recognise each other as the chief and coordinate members of the same great department of practical science.

"The civil engineers have carried their particular arts and sciences to such high development, that the miners and metallurgists acknowledge their dependence upon them at every step; but, at the risk of lecturing the civil engineers a little, I cannot refrain from telling them that some of them do not, we think, sufficiently appreciate the benefits which may accrue to themselves, as well as to us, if they would familiarise themselves a little more with the working details, as well as the general principles, of the metal manufacture.

"We think that they should spend more time in studying the adaptation of metallurgical processes to the production of those physical characteristics that they require in metals, and we very earnestly ask them to better understand the possibilities and economies of the forge and the rolling mill. When we take a student fresh from an engineering school, we expect him to design some machinery that cannot be built at all, and a good deal that cannot be economically built. His *judgment* must be matured by familiarity, not only with mathematical formulæ, but with foundry practice, and with machine-shop practice, and with the economies of transportation, erection and repairs; so that he can make a judicious compromise between the various difficulties he will encounter, to the end that he may learn to build machines and structures that shall be cheap as well as good.

"Is it not equally proper to ask of constructing engineers at large, that they shall, for the same reason, and to an equal extent, study the difficulties of the iron and steel manufacture, and make its economies a more important element in their designs?

"There certainly are instances in which engineers not only harrass the manufacturers of materials, but defeat their *own* ends, by specifying products in accordance with engineering formulæ only, ignoring the economies, if not the possibilities, of production.

"For these reasons it seems to me that the societies of constructing engineers and metal producing engineers should work in greater harmony, like the coordinate Houses of the same Congress, as a means of promoting similar cooperation among the individual members of the professions.

"When we consider the splendid achievements of modern engineering—truss and arch bridges of 500 feet span; foundations sunk through rapid rivers and the drift of ages to the solid rock; machines that are almost human in their automatic operation; whole navies of ships that steam their 15 knots an hour without closing throttle for weeks together; the locomotives, the tunnels, the lighthouses, the breakwaters, the harbors, the water works, the ship-canals, and all the monumental engineering of the time; and then, when we consider the gigantic strides of modern metallurgy, by means of which many of these engineering feats have been rendered commercially possible—the Bessemer process, in 1855 an almost abandoned experiment, in 1875 producing a million tons a year; the Siemens-Martin process, the offspring of a single decade, and already the rival of the Bessemer; when we contemplate the machinery, by means of which a handful of boys can perform the work of a regiment of men; by means of which ponderous and blazing masses of steel are smoothed into the infinite forms of utility, like clay in the hands of the potter; when we observe the chemist prying open the ultimate molecules of matter, and assorting and weighing their constituents; and the metallurgist, by means of scientific synthesis, re-creating what the chemist had dissociated; when we consider all these co-ordinate and splendid achievements of engineering and metallurgy, it seems to me, that the two organizations which represent them may renewedly and more harmoniously in the future press forward that great work to which they have, more than all other agencies, contributed in the past—the establishment and maintenance of the ways and means of civilization."

In future numbers we shall give some notes on the Puddling with Natural Gas at Leechburgh; the Lucy Furnace; the Pittsburgh Gas Works, and other subjects of interest.

Eureka Bonanza.

THE following information upon this important subject appeared in the columns of the *Territorial Enterprise* of May 28.

"As a matter of news we give below some facts in regard to the new discovery in the Eureka Consolidated. The deposit as opened is 180 feet long by 40 feet in width, and at one end 60 feet deep and at the other end 100 feet deep, with the same character of ore as that in the bottom of the shafts. This makes a body of fifty thousand tons of ore in sight, which assays by careful sampling, $40 49 in gold, $93 08 in silver and 57 10 per cent. in lead per ton, giving a net value of the gold and silver, as the lead ought to pay the expenses. This should leave to the stockholders, $6,678,500. There is, besides, five months' supply of ore for the furnaces in the old works. The new development is on the 560-foot level. The Company have worked no more of the new discovery than has been taken out in running the shafs and drifts necessary to develop it. The managers are building a new furnace (which will make four) and constructing a railroad from the furnace to the mine, which improvements will consume the next three or four weeks. When the road and furnace are done they promise to commence upon their bonanza. If they do, with so great a percentage of lead in their ores, they ought to reduce 5,000 tons of ore per month, or, as they will probably mix the heavy lead ores with those carrying a lighter percentage from the old works, their daily reduction ought to be 120 tons, or 3,600 for the month, or a clear profit of $450,000 per month. This is what might be done; what will be done remains to be seen. The ore is so heavy in lead that the bullion will be of low grade, and it takes a long time to get returns from that kind of bullion. Then, we presume, the Eureka is, like other mines, in the hands of people who know what outsiders cannot find out, and who will endeavor to manage their business in the way they will 'do the most good.' The above facts in regard to the extent and value of the ore are reliable."

One of our correspondents, who was on the ground May 31st, writing us upon the same subject, says: "It was then 181 feet long on the ore channel, 100 feet across, and 160 feet in height; but its dimensions in either direction are unknown beyond present progress of work. The main drift on the ore channel (now 181 feet) was still in ore. The 600-foot level had struck the ore (the discovery was made on the 700-foot level drift from the Lawton shaft). The 500-foot level was approaching it, and a winze was sunk from the 700-foot level 60 feet, all in ore. As to width, it had been cross-cut 100 feet from the hanging wall and lime encountered; whether the permanent limit, or a large boulder, is not known. Take it as it stands, and it is only equalled by the Consolidated Virginia and Belcher and Crown Point bonanzas, in extent and richness. The whole carries crystals of molybdate of lead on an exterior coating of carbonates, and a heart or core of sulphurets. This latter class assays in the hundreds, and extends, as now opened, 160 feet in height, with richest ore on bottom. The ore body was found northeast of the old explorations, and was never touched in the former workings of the mine. The old ore bodies laid next to the quartzite foot wall; but this is separated from them by 50 feet of intervening limestone. The discovery was made in runing a drift, on the 700-foot level, from the Lawton shaft towards the Bell shaft. A small seam of ore was encountered, which was followed from the main drift westward into the heart

of this great deposit. The croppings of this deposit make their appearance on the surface about the apex of the hill."

From the above we judge that it will not be necessary to alter the present furnaces, but that in time it will be found advantageous to add roasting furnaces to the works, or to roast in open heaps, if the ore carries sufficient iron pyrites for that purpose.

CORRESPONDENCE.

End of the South Wales Strike.

CARDIFF, May 31, 1875.

TO THE EDITOR: SIR—We have much pleasure in informing you that the colliery proprietors of South Wales and their colliers have come to terms, and the men have this day resumed work; so that the great strike which commenced the first of January last is now ended.

Arrangements have been made for preventing a recurrence of these disastrous strikes, particulars of which, and the basis of the settlement, will appear in our monthly circular to be issued on the 15th June.

The contest has lasted so much longer than was expected that prices are likely to rule much higher for the remainder of this year than was anticipated when first the struggle commenced. We expect to see prices range from thirteen shillings for second, to fifteen shillings for first class steam coals, free on board here. We remain your obedient servants,

TELLEFSEN, HOLST, & WILLS.

Influence of Silicon, Sulphur, Phosphorus, and Manganese on the Qualities of Iron.

BY RICHARD AKERMAN, OF THE STOCKHOLM SCHOOL OF MINES.

CONTINUED FROM PAGE 372.

ARE IRON ORES CONTAINING SULPHUR DIFFICULT OF REDUCTION?

IF furnace charges are not the more basic, they will, when their content of sulphur is somewhat considerable, readily produce black slags, and the general opinion in consequence is that ores containing sulphur are difficult of reduction. When PERCY (1) fused pig iron with some sulphide of iron, under a covering of powdered glass, the glass or slag obtained was completely black, though no oxidized iron was ever found in these experiments, and thus no reduction was ever required, and it therefore appears probable that the cause of the dark color of the slags produced from charges containing sulphur is not to be sought for so much in the unreduced oxide of iron to be found in them, as rather in the circumstance that such slag contains sulphide of iron, whose coloring operation is much more powerful than that of oxide of iron. If the charge has been very basic, and the temperature in the furnace high, sulphide of calcium is formed instead, and the dark color of the slag in consequence disappears.

As, besides, sulphide of iron is very easily fused, the fusibility of iron ore ought to be somewhat increased with its content of sulphur, and as the reduction is rendered difficult by the premature fusion of the ore, the amount of sulphur contained in an iron ore may possibly in this way, in a small proportion, conduce to render the reduction difficult; but so inconsiderable a content of sulphur as is found in our common charges can, perhaps, scarcely in any perceptible degree increase the fusibility of the material, and it may, therefore, be doubted if a moderate content of sulphur can exercise any noteworthy influence on the reducibility of the iron ore. Here it is by no means asserted that a badly roasted ore is as easy of reduction as the same ore in a well roasted condition, for the roasting, on the contrary, beyond all question, has a special influence on the reducibility of the iron ore.

THE ACTION OF SILICA ON SULPHIDE OF IRON.

It has already been shown that the most thorough purification from sulphur which can be effected in the blast furnace is attained by employing the most basic charge possible, together with a high temperature, in consequence of which the sulphur passes into the slag in combination with some earthy metal; but it is also possible, if the temperature is high, to purify acid charges in some degree from sulphur, for that substance can also be separated as sulphide of silicon.

If sulphide of iron is heated alone with silica, no sulphur, according to PERCY (2) is driven out; but, on the other hand, if carbon also is present, the incomparably greatest portion of the sulphur can be separated from the iron, as is seen from the following experiment made in PERCY's laboratory. Sulphide of iron *containing* 60·63 *per cent. iron*, was mixed with its own weight of silica, and half its weight of powdered charcoal, after which the mixture was heated for two hours to a strong white heat in a covered graphite crucible. In this way there were obtained larger and smaller metallic buttons incorporated in the otherwise completely coherent mass, which were collected and fused together in a covered crucible, whereby a hard and brittle metallic regulus was produced which in fracture was light gray with light crystals. When analysed, it was found to contain 18·77 per cent. silicon, but only 1·00 per cent. sulphur; so that all the sulphur found in 97·46 per cent. of the sulphide of iron employed was removed through the mutual action of the silica and the carbon.

SEFSTRÖM (3) has further shown that a volatile compound of silicon and sulphur may be formed when sulphuretted hydrogen is made to pass at a very high temperature over a silicate of lime, or silica in mixture with carbon.

Finally SCHAFHAEUTL (4) has examined *a yellowish-white porous substance* which he saw separate itself upon the surface of pig iron running out of a coke furnace at Tividale, in Staffordshire, and which, if his statement is to be believed, contained 47 per cent. silicon and 50 per cent. sulphur.

THE INFLUENCE OF SULPHUR ON THE QUALITIES OF IRON.

Red shortness.—It appears from the foregoing that there are fortunately many methods by which the sulphur occurring in iron ores may either be completely removed in the form of gas, or prevented from being taken up by the iron, being forced instead to pass into the slag. Seldom, if ever, perhaps, are the circumstances in fact so unfavorable that all the sulphur that occurs in a furnace charge is taken up by the pig iron produced from it. But it is also quite necessary that means be found for the removal of the sulphur, for no substance, as far as we yet know, exercises so intensely hurtful an influence on iron. The researches instituted by EGGERTZ on this subject (5) have shown that so small a content of sulphur as 0·02 per cent. is sufficient to make common malleable iron red-short to that extent that it will crack when a hole is driven through it at a red heat. A worse degree of red-shortness is when the iron, when drawn out in the usual way at a red heat, will crack at the corners, and the worst, naturally, is when the iron falls in pieces when worked at a red heat.

Moderate red-shortness only perceptible at a gentle red-heat.—It is a fortunate circumstance that the influence of sulphur is not equally great at all the higher temperatures, but that iron is most sensible to it at a gentle red heat, and if the working of a strongly heated iron is finished at a full red heat, it is possible to obtain a whole product with an iron containing as much as 0.1 per cent sulphur. The advantage of this is so much the greater, as the sulphur exercises no injurious influence on the strength of the iron in an unheated state, but, on the contrary, the iron containing sulphur, if it is free from cracks, is thought by many to be almost stronger than that which is free from sulphur, though I am not aware that this view has been confirmed by any separate experiments.

When a finished article, as, for example, rails, is produced, it follows from the circumstance just stated, that a moderate content of sulphur is only injurious inasmuch as it forces the workman so to hasten the rolling that the rail is finished before its temperature has sunk to the temperature most dangerous for red-shortness. But if a rail, free of cracks, has fortunately been obtained by hasty rolling, it is equally good as any other, whether it contains more or less sulphur, and the hurtful action of the content of sulphur comes into play again for the first time when it is worn out and the question arises of working it in a heated state for some other purpose.

It is thus, in many cases, possible by hasty drawing to make ourselves independent of a moderate red-shortness, but this is only of some advantage to those iron-workers who produce finished articles. In Sweden, where, in general, only bar-iron is produced—which is not to be considered a finished product but only a raw material—it is, on the other hand, of no service to produce, by hasty drawing, bars, fault-free on the outside, of iron which is none the less red-short from its content of sulphur; for these bars are seldom, if ever, used without some alteration of their form, but they are intended to be further worked when heated, either in an unaltered state or after being converted into steel, and the purchaser, therefore, soon becomes aware of the inherent red-shortness.

Quantity of Sulphur in red short Iron.—As we have seen that it is possible, to a certain extent, to escape the inconveniences arising from the injurious operation of sulphur on iron through carefulness in the working, or a proper regulation of the temperature, it is not at all wonderful that the opinions about the quantity of sulphur necessary for causing red-shortness differ considerably. One of the hardest proofs of red-shortness in iron is that mentioned before, to drive a hole in it when at a red heat, and it has been found, as has been mentioned, that filings from the cracks thus produced have not contained more than 0.2 per cent. sulphur, while hearth-refined iron, which showed cracks in the corners when drawn out at a temperature most dangerous for red-shortness, did not contain more than 0.03 per cent. sulphur. On the other hand, in iron which, in the refined state, has been quite fluid as Bessemer steel, there has sometimes been found 0.04 per cent. sulphur, without the iron yet showing the least trace of red shortness, and as the content of sulphur probably is more equally distributed in such iron than in that which has not been so well fused, it seems to follow from this, as might besides have been expected, *a priori*, that the more equally the content of sulphur is distributed, the less sensibility has the iron for that substance.

The Sensibility of Steel for Sulphur.—If steel is quite as impatient of sulphur as is the case with iron poor in carbon, or, in other words, if the content of carbon in some degree diminishes the sensibility of iron for sulphur, is not yet altogether cleared up; but BRUSEWITZ (6) has in the meantime thought that he found that the harder Bessemer steel is less impatient of sulphur than the softer, and it also appears as if cast steel in this respect were somewhat less impatient than common iron. The last-named circumstance ought again, perhaps, to be ascribed to the more uniform distribution of the sulphur in the former than in the latter; and it is not impossible either that the not inconsiderable content of manganese, which is commonly found in such cast and Bessemer steel, exercises some influence in this respect.

Pig-iron containing a considerable quantity of Sulphur readily made white and honeycombed.—With respect to the influence of sulphur on pig-iron, we have already seen that it increases its propensity to be white by augmenting the power of iron to retain in combination the carbon occurring in it, and possibly also, in some degree, by diminishing the taking up of carbon. If the content of sulphur is great, the pig-iron will, besides, be full of bubbles or vesicles, which naturally is occasioned by some giving off of gas arising from the content of sulphur, and to a great degree by the fluidity of the pig-iron being diminished as its content of sulphur is increased. The gas causing the bubbles, possibly, to some extent, consists of sulphide of carbon, and, perhaps, sulphide of silicon, but if the moulds are moist it is principally formed of sulphuretted hydrogen and carbonic oxide. We have seen in the foregoing that when watery vapor comes in contact with strongly heated iron containing sulphur, sulphuretted hydrogen is formed, while, at the same time, some iron is oxidized, which again parts with its oxygen to the pig-iron's carbon and thus causes a giving-off of carbonic oxide.

The influence of the quantity of Sulphur on the strength of Pig-iron.—A moderate quantity of sulphur appears rather to increase than diminish the strength of pig-iron, on which account the Finspong cannon pig is intended to contain 0.1 to 0.14 per cent. sulphur; but it is in the meantime doubtful if the action of the sulphur is so direct as is commonly supposed. It is thought that the influence of sulphur in this respect may be equally well explained in this way, that the charge's content of sulphur facilitates the production of a pig-iron with just the content of carbon which is necessary for the highest possible cohesive strength. For this purpose, again, it is desirable that the pig-iron's total content of carbon be not particulary great, for its content of combined carbon ought to be about 1.5 per cent., or at least not to exceed 1.8 per cent., and the graphite cannot do otherwise than diminish the cohesion between the particles of iron, wherefore it ought not to be found in too great abundance. Finally, it appears from several circumstances to be probable that a moderate content of sulphur facilitates the formation of the intimate mixture of white and gray, which is so desirable for the strength of a pig-iron.—*Iron.*

TO BE CONTINUED.

(1) "Metallurgy; Iron and Steel," p. 133. Percy-Wedding, p. 173.
(2) "Metallurgy; Iron and Steel," p. 38. Percy-Wedding, 4-47.
(3) "JERNKONTORET's Annaler," 1829, p. 355.
(4) "Journal für praktische Chemie," Bd. 76, p. 265.
(5) "JERNKONTORET's Annaler," 1860, p. 15.

West Virginia Coal Trade.—A correspondent says: "The coal business does not improve. Two mines have passed under the Sheriff's hammer within a month, while a third sale is imminent. Till lately the policy of the Railroad Company has been to ask all the freight they thought coal would bear at its highest value. They have now changed their tactics somewhat, but I fear it is is too late to recover any business for this season. The Supply Coal Co. has located nearly opposite the mouth of Paint Creek, and they are now building an incline to the River, expecting to ship by the Kanawha, and also to ferry their cars over to the C. & O. R. R."

Reduction of Quicksilver.

THERE is no metal in which so large a percentage is lost in reducing the ore as quicksilver. Mercury being one of the most volatile of metals, and evaporating at a comparatively low temperature, it has been found in practice impossible to free it from the other substances with which its ores are combined without the escape of a large portion of the mercurial fumes. It has been calculated that in the mines of Idria, in Austria, the loss in the reverberatory furnaces was from 46 to 48 per cent., in the shaft furnaces from 59 to 74 per cent., and in the retorts from 7 to 9 per cent. of the metal. A knowledge of these facts induced Mr. PATERA to apply his practical experience to devising a method by which he could save the quicksilver, and in 1871 he obtained a patent for a new description of furnace which has been found to answer the purposes required. The great loss in the usual system he explains as arising from the following causes: In the first place, the ore, he says, being fed into the furnaces, reduced to the size of a rough sand, mixed with small pieces, and into the shaft furnaces in pieces of considerable size, there always remains a considerable portion which is not properly roasted. Secondly, he states that as the temperature applied is very high, the mercurial fumes are very much expanded, and, consequently, difficult to condense. There is also, he remarks, a very considerable portion of the quicksilver absorbed by the ponderous masonry of the reverberatory and other furnaces; whilst the large condensing chambers which are required entail a still further loss. Having ascertained these to be the principal causes of loss, he combated them one by one. With this object, he commenced by reducing the ore to very fine particles; he next constructed a furnace, of which the temperature can be regulated and air admitted as desired, whilst the products of combustion are not permitted to pass into the condensers, the ore being enclosed in a retort, and not coming into direct contact with the furnace. Many experiments were tried by Mr. PATERA before he succeeded in perfecting his process. The great object which he endeavored to attain was, to extract the metal at the lowest possible temperature, as by doing so, the condensation must necessarily be more easily effected, and the product be in a condition of greater purity, uncontaminated by soot. The many advantages of such a system must be self-evident; whilst the construction and working of a furnace to be used for low temperatures alone is, of course, perfectly simple. The whole system, indeed, of Mr. PATERA is remarkable for its simplicity and facility of adaptation, as well as for the few expenses which it entails on the manufacture.

The apparatus consists of a cast-iron retort with a condenser. This retort is made 2 feet wide, 9 inches high, and 10 feet long. Three inches of each side of it rest in the brick wall of the furnace, and at the end it is made to project 3 inches over the rear wall, for the purpose of connecting it with the condenser. There are thus 4 square feet of the bottom of the retort which can be made use of for spreading the ore to be treated, and as 100 lb. of quicksilver ore, of from 2 to 3 per cent., when finely pulverized occupy about 1 cubic foot, that amount can be spread in a layer, 3 inches thick, over that extent. The furnace is of the usual description. In the front of the retort there is an iron cover, with two openings of 1 inch each in diameter, to which iron pipes are attached to admit air. Through these openings the workmen can see the progress of the operation inside. In order to protect them, whilst doing so, from the pernicious fumes, a hose is attached to the end of the iron pipe, and conducted into an open vessel, wherein the escaping quicksilver is collected. At the rear of the retort a condensing pipe of iron is fixed. This pipe for a short distance is on the same inclination as the retort, but the lower side of it then is made to descend, the upper side being continued in a straight line. In this manner a sort of trough is formed, in which the condensed quicksilver rests, and from which it can be tapped as required. The condensing pipe is closed by a cover, in which there are two openings, one being for the purpose of inserting a thermometer to ascertain the heat of the interior. At the extremity of the condensing pipe, over that part which is formed into a trough, there is a circular opening, to which another condensing apparatus, consisting of a series of clay pipes, 2 inches in diameter, is constructed, which ultimately lead into the furnace, where the gases are consumed before being sent out into the atmosphere. At several points in the pipes there are holes with covers, for the purpose of enabling the operator to see whether the condensation has been completely effected. The condenser and pipes are kept cool by means of a stream of water on the outside, and the fumes in the former are forced against the sides by a partition, running its whole length. By the arrangement described, a constant current of air is forced to pass over the surface of the ores in the retort to feed the furnace, which derives its supply from this source alone. The sulphur and other substances in the ore are in this manner partly consumed, whilst the passage of the mercurial fumes to the condenser is materially assisted. The quickness with which the vapor is condensed on this system is shown by the fact that whilst in the first condenser, at a few inches from the retort, the thermometer will show a heat of from 210 degrees to 230 degrees centigrade, at about 3 feet in the trough extension it will barely indicate 30 degrees. Mr. PATERA reduces the ores to be treated to a fine powder, and, according to his experience, he can count on securing from 88 to 90 per cent. of the assayed amount of the quicksilver which is contained in the ores. The immense improvement of this system over those hitherto in use consists not only in the larger percentage of metal obtained, but in the extreme purity of the product, which cannot be contaminated with soot, as is the case where the ores are mixed with the combustibles employed for their reduction.

It has been found that in order to determine the exact length of the condenser, and the proper length of pipes to secure the greatest economy, experience is the only guide, as with different ores, and with different descriptions of fuel, slight modifications are required. There is, however, little difficulty in altering parts so simply constructed, as the condenser. Being made of sheet iron, it can be shortened by cutting, or lengthened, by simply adding plates, whilst the number and consequent length of the total series of earthenware tubes can be modified at any moment. The dimensions of the retort given are those which experience has proved to be the most suitable under the circumstances where they have been tried; but, although the proportions ought to be maintained, there is no necessity, under other conditions, for their being adhered to strictly. Different kinds of ore and fuel require modification, and the length of the condenser, as well as of the tubes, have to be regulated according to the necessities which actual experiments have shown to be requisite. The system in itself is not changed or modified by such alterations, which show only that, according to varying circumstances, it must be adapted to meet the wants of each particular case. Some ores are more easily treated than others, and require less length of tube through which their vapors must pass, whilst the rapid consumption of certain kinds of fuel raises the temperature more quickly than is the case with others. It is thus necessary to adapt the apparatus to each particular case, though the principle is always maintained intact, and it is, therefore, quite impossible to fix dimensions, which must be regulated to suit each particular case.—*Mining World.*

Silver-Lead Smelting at the Winnamuck Smelting Works.*

IN a previous report these works, and the process in operation at the same in 1874, have been described in detail. Since then, however, the changed character of the ores has rendered necessary material additions to the works, and alterations in the process heretofore followed.

For the following details of the work done during 1874, and the present aspect of affairs, I am indebted to Mr. ALFRED WARTENWEILER, the metallurgist in charge. This gentleman has been the first in Utah to introduce roasting processes, and to subject the lead-copper-matte formed in the ore-smelting to intelligent further treatment. Since then, several other works have imitated him in this respect.

The ores smelted during 1874 came partly from the Winnamuck and the Whasatch, and partly from various other mines, the latter having been bought, principally, toward the end of the year.

The Winnamuck ore, mined during the year, may be divided into two classes, that from the old upper workings of the mine being mostly oxidized carbonate and sulphate of lead; the other, from the lower portion of the mine near water level, being a mixture of galena, iron and copper pyrites and zinc blende. These two classes were carefully kept apart at the mine, in order to facilitate as good and perfect a working of the last-mentioned class as could be done under existing circumstances, *i.e.*, with imperfect appliances, procured at the spur of the moment, and under the pressure of supplying the furnaces with ore as soon as possible. The average assay of sulphuretted ore during the year was: in silver, 55·5 oz. per ton, and 16 per cent. of lead; of oxidized ore, in silver, 52·48 oz., and 23·13 per cent. of lead. The records show, however, great differences in values between the beginning and the end of the year. While in January and February, ore with 30 to 35 per cent. of lead and 30 to 50 oz. of silver per ton was smelted, November and December furnished ore, the average contents of which were 15 to 20 per cent. of lead, and 50 to 75 oz. of silver. In fact, it has been considered a rule at this mine, that, the higher the ore assays in silver, the lower is the percentage of lead, and the reverse.

Silica and alumina represent the gangue. The average of six different tests made shows

$Si. O_4$ 41·16.	$Al_2 O_3$ 8·31,
$Fe_2 O_3$ 3·99.	Ca O, 2·10.

The Winnamuck ore showing a gradual decline in its contents of lead, it became necessary to either purchase another mine, containing ore with a high percentage of lead, or to purchase such ores. In January, 1874, the company bought the Whasatch mine, situated on the eastern slope of the range. For a few months the ore from this mine was of great assistance to the smelting, as it contained 48 to 52 per cent. of lead, and 9 to 12 oz. of silver per ton. But 500 tons of such ore, and about 240 tons of second class, containing 35 per cent. of lead, exhausted the mine.

Spanish ore, of which there had been about 400 tons lying at the works for over two years, was next used to make up the deficiency in lead. But although it fulfilled the requirements in this respect, it certainly did not improve the smelting otherwise, as it contained 32·5 per cent. $Si. O_3$ A few other small lots of ore were bought, such as Nez Percés and Utah, but these, too, were of such a composition as to add only more difficulties to the smelting operations. The amount of flux used during the first eight months of 1874 was enormous, amounting often to 33 per cent. of the ore-charge, and consisting of hematite, at $18 per ton, and limestone, at $4 per ton. Later in the year, after roasting processes had once been thoroughly established, the amount of fluxing material was reduced 50 per cent. and more.

The iron ore received from Wyoming during the year was of a very inferior character.] Up to June, it averaged 65·6 per cent. of metallic iron; from June to November, only 54·9 per cent. Of late, large cobbles of the hardest flint are intermixed with the hematite. After November, the use of iron ore in the furnaces was stopped entirely. In its stead "South Star" and "Titus" ores were bought. They are known as probably the most basic ores of the Cottonwoods. Large quantities of roasted ore and matte were used at the same time.

A trial of some Tintic iron ore was made earlier in the fall, with such limited quantities, as to leave the *result* uncertain. An analysis of this ore showed 69 per cent. of sesquioxide of iron, and 4·2 per cent. of lime.

The principal fuel used was coke, the supply of charcoal being limited and very uncertain. It has, however, been found very advantageous to use some charcoal mixed with the coke. This has, of course, the effect of lightening the column of charges, and of leaving the smelting mixture less packed. It, therefore, permits a more perfect play of the blast, than the use of coke alone, which renders the columns in the furnace so dense, that the blast cannot sufficiently penetrate.

The waste and shortage on both coke and charcoal has been tremendous. The charcoal delivered at the works was mostly soft and spongy, and its calorific effect was, therefore, very unsatisfactory. One half of it was re-loaded from broad gauge railroad cars into narrow gauge cars, and a large amount of fine coal was thus made. Not less than 24 per cent. of waste were measured out during the year.

Two different kinds of coke have been delivered at the works—St. Louis and

* From the Report of the U. S. Commissioner of Mining Statistics for 1874.

Connellsville. The supply of the former was stopped early in Spring, as it was found unfit for smelting purposes. Pieces of slate, from the size of hazel-nuts to ten and fifteen pounds weight, were picked out from this fuel.

The coke lately delivered by MORGAN & Co., of Pittsburgh, was a very fine article, but when finally laid down at the Winnamuck works, hard and dense as it was, a waste of from 10 to 12 per cent. would be found. Loading, two or more transfers, unloading, etc., converted a large amount into powder, and tons upon tons have been carted away. Such a loss is hard to bear, where the price of the article in question runs up to $35 per ton. To remedy it in some measure, perhaps the only way would be to mix the dust with tar, and to press it into small bricks.

The rapid burning out of the fire material has been encountered by the use of cast iron water jackets of three feet six inches in height, the inside plates being ¼-inch, and the outside one ½-inch thick. The water-space is three inches. These jackets are made in six sections, answering to the periphery of the furnace. They are held in position by a stout iron band. The first, constructed in 1873, has been replaced by another pattern, principally because the former ones were cast with tuyere and jacket all in one piece. The tuyere projected about fourteen inches into the furnace, and as it was the most exposed part, it very soon cracked and was found leaky. This necessarily required the instant removal of the jacket, which, with a furnace in full blast, was an exceedingly ugly job, causing much loss of time. The jackets were, therefore, cast with simply an opening for a tuyere in the center of each section. By this means two great advantages were gained. First, *wrought* iron tuyeres could be used independent of the jacket; and second, by selecting tuyeres of not less than twenty inches in length, the section of the furnace at the tuyere line could be changed *ad libitum*, at the option of the metallurgist, at any time during a campaign. During a period of seven months, after the introduction of this improvement, not one tuyere, or water jacket, has been found in bad condition. The furnaces could make campaigns of from 60 to 90 days. Many objections, on theoretical grounds, have been raised to the jackets. But, considering the expenses incurred every month in re-building and repairing a brick furnace, the economical advantage in works situated like the Winnamuck is decidedly on the side of the water jackets, even if we admit an increased consumption of fuel. Comparing the records of the previous smelting in fire-brick furnaces, with those obtained by smelting with the help of jackets, the increase in fuel used figures up to about 1-16, but by starting a furnace carefully, the difference is only nominal.* After two or three days run of a furnace, the inside of the jacket is coated with what might be termed artificial galena, from four to six inches thick, preventing the coroding of the iron perfectly, and being a good non-conductor of heat.

Up to the Spring of 1874, no attempt was ever made to make use of the large amounts of sulphuretted ore from the lower portion of the mine.

In May, a small reverberatory furnace was constructed at great expense, caused mainly by costly and difficult excavations. This furnace roasting only very limited quantities, and losing a large portion of the heat in the flues, proved naturally a very expensive experiment. The same difficulties experienced in building the first presenting themselves for any lateral extension of a second furnace, a double-hearth reverberatory was constructed; the lower one being at a height of three feet four inches from the ground, and having an area of 9x17 feet; the upper one is worked from a platform, and has a roasting surface of 9x15 feet. The fire-box built outside, and independent of the furnace, delivers its flame over a perforated fire-bridge, whence it passes over the ore on the lower hearth, ascends through a narrow flue, six feet by six inches in section, and eight feet six inches high, into the upper hearth, here over another layer of ore, and then turns over the arch of the upper chamber into the flues.

A great saving of labor and fuel has been effected in this manner, the ore coming into the finishing hearth already partially roasted. Whenever a roasted charge is drawn, the whole column of ore passes along the entire length of the two hearths, and another charge is fed in from the top. The two chambers contain always four charges of one ton each. The entire cost, stack excepted, of this furnace, amounted to $1,650. The fuel required for 24 hours consisted of 1,400 lb. of coal (lignite), and there were four laborers required to roast 8,000 lb. of ore. The old reverberatory required the same amount of fuel and three laborers, who could roast only 5,000 to 6,000 lb. of the same ore.

All the ore coming from the lower levels of the mine was run along a track directly over the track of the double hearth, and dumped over an iron screen, allowing half-inch pieces to pass. The fine ore falling on the top of the furnace near the feed-hole, rendered the filling in of a charge a job of only a few minutes' duration. The coarse pieces passed over the screen into a chute, which delivered the ore to a flat below the works, to be here roasted in stalls or pits.

Owing to the character af the ore, the roasting of a furnace-charge to a point where it is called "dead," was impossible. There might have been a more satisfactory result, had all the particles of ore been of nearly the same size. As it came to hand, the size varied from dust to half-inch. It was a combination of 25 per cent. galena, 45 per cent. iron and copper pyrites, and 5 to 10 per cent. zinkblende; and whoever has tried to roast such a mixture will understand the difficulty in the way of a quick, and, at the same time, good roasting. The consequence was, of course, the formation of a large amount of accretions gathering in the blast furnace, near the feed-hole, in such quantities as to interrupt the campaigns. After four or five weeks this mass generally had to be removed by blowing the furnace down partially, and breaking the lumps off. The total cost of this imperfect roasting in reverberatories was $5 10 per ton of ore, coal costing $12 per ton, and labor $3 50 per day.

TO BE CONTINUED.

* MR. WARTENWEILER forgets, that his compa ison with former camp igns was not a fair one, because in the late campaigns he had the advantage of using partially r asted ore and matte in his charges, which tends greatly to diminish the consumption of fuel.—R. W. R.

Agreement between the Philadelphia and Reading Coal and Iron Company, and Schuylkill County Operators.—This association shall be composed of the individuals, firms and corporations who are engaged in mining coal in the Schuylkill region and who shall have signed the constitution and by-laws. The officers shall be elected by ballot on the last Thursday of each year, together with a committee of nine, which committee shall meet monthly to establish a minimum price for each and every size of coal, for the month following, for the line and city trade, and shall also have full power and authority to curtail the shipments or stop the production if necessary, (providing that all curtailments or stoppages shall be equally on all collieries,) or transact any other business which may be for the general interest of the operators. Said officers and committee shall serve for the ensuing year, or until others are chosen. The committee on line and city prices shall meet monthly at the office of the Philadelphia and Reading Coal and Iron Company, at 12 M. We do hereby agree that the action of the combined companies shall govern all coal for competitive points that goes to Port Richmond for shipment, and all that is shipped by way of the Schuylkill canal, and consigned to points upon or through the line of the Delaware and Raritan canal for the shipping season of 1875. And we do hereby agree to abide by such action, and do empower the president or vice-president of the Philadelphia and Reading Coal and Iron Company to represent us in the premises, and pledge ourselves to do all things necessary to carry out the same.

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative Statement for the week ending June 12:

	1875.		1874.	
	Week.	Year.*	Week.	Year.
Wyoming Region.				
D. and H. Canal Co.	79,379	1,389,574	59,929	1,131,827
D. L. and W. RR. Co.	85,604	1,425,980	51,569	1,157,099
Penn. Coal Co	33,953	551,143	30,055	540,493
L. V. RR. Co.	6,693	361,083	27,161	460,053
P. and N. Y. RR. Co	4,849	46,102	863	34,075
C. RR. of N. J.	18,053	199,081	38 990	599 451
Penn. Canal	..	..	..	..
Lack. and B. RR.	..	63,596	..	97 019
	228,537	4,036 539	209,067	4,018,917
Lehigh Region.				
L. V. RR. Co	9,437	176 691	79,145	1,381,157
C. RR. of N. J.	17	6,977	22,274	440,820
D. H. and W. B. RR.	1,814	25,270	1,317	10,826
	11,268	208,938	102,766	1,832,803
Schuylkill Region.				
P. and R. R. RR. Co	38,687	543.445	113,803	2,110,671
Shamokin and Lykens Val.	31,420	449,844	22,931	332,800
	70,107	993,289	136,734	2,443,471
Sullivan Region.				
Sul. and Erie RR. Co.	138	5 557	..	11,512
Total	310,050	5,244,343	418,567	8,306,703
Increase	..	..	..	..
Decrease	138,517	3,062,360	..	..

* Year beginning January 1st.

The above table does not include the amount of coal consumed and sold at the mines, which is about seven per cent. of the whole production.

The following Table does not give the entire production of our Bituminous mines, but it is by far the fullest report published.

The Production of Bituminous Coal for the week ending June 12, was as follows:

Tons of 2,000 lb., except where otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2,240 lb	63,185	892,150
Barclay Region, Pa.		
Barclay RR., tons of 2240 lb	7,186	124,349
Broad Top Region, Pa.		
Huntingdon and Bread Top RR	5,213	98,044
*East Broad Top	418	19.959
Clearfield Region, Pa.		
*Snew Shoe	755	34 451
*Tyrone and Clearfield	18,966	329,895
Allegheny Region, Pa.		
*Pennsylvania RR	4,226	111,844
Pittsburgh Region, Pa.		
*West Penn. RR	4,730	91,099
*Southwest Penn. RR	61	3.962
*Penn. & Westmoreland gas coal, Pa. RR.	12,221	188,147
*Pennsylvania RR	10 574	157,560
Kanawha Region, W. Va.		
Chesapeake and Ohio RR	5,389	69,711

* To June 7.

The Production of Coke for the week ending June 7.

Tons of 2000 lb	Week. Tons.	Year. Tons
Tyrone and Clearfield	..	273
Alleghany Region	..	53
West Penn. RR	681	22,636
Southwest Penn. RR	12,286	216,327
Penn. & Westmoreland Region, Penn. RR.	858	11,458
Pittsburgh, Penn. RR	2,472	42,108

The receipts at Buffalo, via L. S. and M. S. RR. for the week were 2,973 tons, and by Lake 178 tons. The exports by Lake were 10,407 tons, and imports 1120 tons.

The Exports of Coal from Baltimore for the week were 954 tons, and for the year, 24,018 tons as compared with 51,050 tons to the corresponding time in 1874.

The decrease of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania Railroads amounts to 47,067 tons.

Belvidere Delaware RR. report:	Week.	Year 1875.	Year 1874.
The receipts of coal at Coal Port (Tr'ton)	..	206	112,527
" " " South Amboy	131	19,932	312,771
Shipments of Coal Port (Trenton)	..	196	110,617
" South Amboy	393	98 303	271,096

Receipts at Greenwich, Philadelphia:

	Bituminous.	Gas Coals.
Receipts	10,013	9,956
Shipments	8,759	6,660
On hand	2,785	3,397

Shipments from Pictou, N. S.

	Tons. Week.	Year.
To United States	—	1618
" West Indies	—	—
" South America	—	—
" Canada	—	5050
" Other Provinces	—	3465
	—	10,733

Shipments from the Block House, Cow Bay, C. B., to the following destinations:

	Week.	Year.
Provinces	637	2377
West Indies	—	486
	—	2863

Production of Bituminous Coal, 1875.

Tons of 2000 lb.	Previous.	April.	Total.
Blossburgh Region	69,796	30,554	100,350
Barclay Region	80,474	22,512	102,986
McIntyre Coal Co	15,807	7,102	22,909
Broad-Top Region	47,747	15,712	63,459
Cumberland Region	288,602	277,321	565,923
East Broad Top	7,198	6,074	13,272
Snow Shoe	19,384	8,324	27,708
Clearfield Region	198,013	62,469	260,482
Alleghany Region	44,108	28,488	72,596
Pittsburgh Region.			
West Penn. RR	46,255	20,043	66,298
Southwest Penn. RR	1,484	963	2,447
Gas Coal, Penn. RR	148,198	6,588	154,786
Pittsburgh Coal, Penn. RR	64,593	35,367	99,960
Saw Mill Run RR	12,283	11,996	24,279
Cleveland and Pittsburgh RR	73 579	33,176	106,755
Pittsburgh, Cincinnati and St. Louis RR	184,347	51,930	236,277
Erie and Pittsburgh RR	23,877	4,748	28,625
Pittsburgh, Fort Wayne and Chicago RR	51,381	23,435	74,816
Pittsb'g. & Castle Shannon RR.	16,732	12,271	29,003
A. V. & P. RR.	1,001	275	1,276
Pittsb'g and Connellsville RR.	81,119	43,137	124,247
Monongahela Nav. Co	..	..	..
Keeling & Co	26,896	..	26,896
Wettengell & Gormley	6.797	..	6,797
J. W. Carlin & Co	..	..	..
Pittsburgh Va. & C. RR	9,747	2,457	12,204
Allegheny Valley RR	92,681	..	92,681
Gray & Bell	3,461	..	3,461
St Louis Region.			
St. Louis A. and T. H. RR. and Branches	95,064	..	95,064
Illinois and St. Louis	..	..	..
Indiana North and South RR.	264	..	264
Evansville & Crawfordsville RR	7,634	1,895	9 529
Ohio and Mississippi RR	39,696		39,696
Sewanee Region.			
Tenn. Coal and RR. Co.	18,239	8,846	27,085
Kanawha Region.			
Chesapeake and Ohio RR.	13,982	30,005	43,987
Warrior Region, Ala.			
South and North Alabama RR.	10,720	2,999	13,719
Cahaba Region, Ala.			
South and North Alabama RR.	4,490	660	5,150
S. R. and D. RR	3,471	..	3,471
Chicago B. and Q. RR	109,819	32,644	142,463
B. and M. R. RR	22,774	6,078	28,852
Union Pacific RR	61,369	..	61,369
Keokuk and Des Moines RR.	..	..	..
Denver and Rio Grande	6,982	1 696	8,678
Cairo and St, Louis	3,106	..	3,106
	2,013,17	789,765	2,802,926

COAL TRADE REVIEW.

Duties.

Anthracite free, *Bituminous*, per ton of 28 bushels, 80 lb. to the bushel, 75c., gold.

All *slack*, or *culm*, such as will pass through a half-inch screen, per ton of 28 bushels, 80 lb. per bushel, 40c. gold.

Not otherwise provided for, per ton, 40c. gold.

NEW YORK, Friday Evening, June 18, 1875.

Anthracite.

The demand for such coals as are in the market has fallen off very much, and the business is pronounced actually dull. We have had no intimation what prices the circulars of the different companies will contain for next month, but as all will be largely at work by that time, a full line of circulars will probably be issued.

End of the Anthracite Strike.—For several weeks past we have been reporting signs of weakness on the part of the Miners' Union. We are now enabled to report an unconditional surrender of the men of the Lehigh and Wilkes-Barre Coal Company, a surrender under protest of the Schuylkill County miners, and indications that any troubles still existing are only of local importance, and will all be settled in a few days. The men of the Lehigh and Wilkes-Barre Coal Company said that they had made mistakes in holding out so long, and in making a strike; that they were in want of the necessaries of life, and eager to resume work immediately. The works of the different companies will be started as soon as possible.

As our readers are aware, the strike began with the opening of the year; and by the time work is fully resumed a majority of the men will have lost six months wages. The miners of the Lackawanna Region and on the western border of the Schuylkill Basin very sensibly concluded that the general condition of business did not warrant them in striking, and accepted the terms offered by the companies—making but little opposition. The miners in the former region accepted lower wages than were offered in the other regions. They "made a virtue of necessity," and the result is that they will have received more wages, for the first six months of this year, than they have received for any corresponding time since the war, with a chance of receiving, for the balance of the year, equally as good wages as those who struck. If the output of the Lackawanna companies is curtailed for the balance of the year, the single men can seek employment in the collieries that are working full, and so in a manner, equalize the wages of the whole anthracite coal field during the next six months.

The value of labor cannot be determined by the earnings of employers, but by the relative value of similar kinds of labor. During last year the wages of most of the different classes of labor were greatly reduced, in many cases meeting much opposition; but the business of the country demanded that the reduction should be made or that manufacturing be suspended until the existing surplus of many of our productions should be worked off.

By most classes of labor the reductions were eventually submitted to, as the men thought that small wages were better than none. The large coal producing companies, seeing that even with the large reductions that were made in wages, many manufacturing establishments, and particularly furnace and rolling mill companies, were unable to reduce the cost of their manufactures to a figure that would secure them a market, felt the necessity of encouraging such industries by furnishing them with cheaper fuel, thereby maintaining a market for their own product; and to accomplish this object, they proposed to their miners a reduction of wages, which were, as compared with those received by other classes of labor, exceedingly high. The workingmen should know that an advance of wages received during prosperous times, must be followed by a corresponding reduction in depressed times. Advances almost invariably result from demands of the men, while reductions are proposed by the employers. Employers are always desirous of employing labor as cheaply as possible, but they always look to their interests first, and if they find it to their advantage to concede the demands of the men, rather than risk having their works stopped for a month, they do so. On the other hand, the coal miners have made it a principle to resist every reduction proposed, without considering whether it is a just demand on the part of the employer or not. They are encouraged and led to believe, by paid agitators—men desirous of consuming the Union funds in idleness—that by union and resistance they are irresistible. When an agitator admits a company's rights, or anything but the miners' wrongs; a company's strength, or anything but the irresistibleness of the Union, he looses his popularity, and, eventually, a remunerative position. There must be much lack of intelligence where a body of men will employ a few of these leaders to advise them to work out their own injury. The anthracite miners have learned some valuable lessons, at the expense of six months' wages, and much suffering by themselves and families; among others, that a depreciation in the value of labor must inevitably follow a depreciation of all other values, and that there are times when wages must be reduced, and that the companies at such times have firmness enough to maintain their positions be the cost ever so great.

As we have from time to time remarked, there is a great surplus of labor at the anthracite mines which reduces the earnings per annum, while the wages received for the time actually worked are very large. The strike, while it has been a great injury to the miners in every other respect, has greatly increased this evil. Owing to the scarcity of anthracite coal early in the season, and the uncertainty of a future supply, many consumers contracted for a year's requirements of bituminous coal, thereby reducing the companies ability to give employment. Although the managers of the anthracite companies may assert their ability to regain all of the trade which they have lost this year, yet, there is no doubt that much of it will never be regained, thereby, perhaps forever, reducing their ability to employ.

At the end of six months it will be found that the decrease in the output of coal will only be about 3,000,000 tons compared with what it was for the corresponding period last year, or about one-seventh of the whole production of the year. There is no doubt that this deficit can be made up during the next six months, or the production even increased beyond that of last year. At the present time we find the *necessities* of consumers fully supplied, and an actual dullness in trade. In three months from now we will probably see the wants of the trade fully supplied with special qualities, and then will begin an accumulation; so that by the 1st of January of next year, we shall probably see as great a surplus in the market as we saw at the opening of this year, and just as great cause for another reduction of wages, which it will be as great folly to resist as the one proposed this year. Neither anthracite wages nor anthracite coal are low enough, and the truth had much better be realized now than later.

The Miners' Union was beaten by a combination of companies, without which, however, the prices of coal would have been so low, through competition, that the miners would have had to submit to much lower wages, or the companies would have had to close a large number of their collieries. When the next reduction in wages is proposed, let the subject be carefully discussed and an honest expression of the miners be secured, and not smothered by intimidation, as has been done during the recent strike; and when the true sentiments of the miners are known, if it is found that they are likely to bring about another conflict, let the subject be placed before a board of arbitration, and not be contested by the weaker party, as was the case in the strike just ended. In the past strike, the miners had the disadvantage of having no market for their labor that would pay them so well as the anthracite companies, and whenever another reduction should be asked, let them consider that it is not good policy for them to demand higher wages than other industries are willing or able to offer them.

Bituminous.

There is considerable quietness in the Cumberland, Clearfield and Broad Top coal trades. The demand has fallen off very much, but prices continue without change. The Committee of the Cumberland interests appointed to arrange some plan and secure a sufficient co-operation for forming a Combination similar to that existing in the anthracite trade, continue to have hopes of final success; their only object now is to secure a perfect organization before the opening of next year's business.

Miners Sentenced for Conspiracy and Riot.—The early termination of the Clearfield County strike was brought about by the prompt action of the operators and the fearless fulfillment by the county officers of their duties. As will be remembered, thirty-two miners were arrested for riot and conspiracy to intimidate those desirous of continuing work. On Monday, a jury found a verdict of guilty against all the accused, and on Tuesday, Judge ORVIS pronounced sentence. He divided them into three classes: 1st. Six of the most prominent were sentenced to pay the costs of prosecution, $25 fine, and to undergo an imprisonment of one year; 2d. Thirteen, of less prominence, were sentenced to pay costs of prosecution, a fine of $25, and undergo an imprisonment of 60 days; 3d. Upon the remaining thirteen, who were considered to have acted under the control of leaders, sentence was suspended. This is the most prominent victory that has been gained by the operators and industrious, peaceable miners, and establishes a practical precedent for future protection against such outrages as have been committed in the various coal-fields, throughout the country, during the last six months. It will be remembered that a similar verdict was rendered, last Summer, against certain leaders of the Boatmen's Union at Cumberland, but that the penalty inflicted was merely nominal, and not likely to impress upon the men a proper respect for the laws. We are pleased to see that Judge ORVIS has realized the necessity of making examples of the leaders in these riots and conspiracies, and hope that other Courts may do likewise, should circumstances require it, until it is an established fact that a strike must be conducted peaceably and without the least attempt at intimidation on the part of the strikers. No one denies the right of miners to demand higher wages, or to try to accomplish their desires by peaceably combining to strike; but, when men are compelled to join their ranks by intimidation and force, the true interests of the country call for prompt action and justice.

During the September term of the same Court that tried the above-mentioned miners, JOHN SINEY, President of the National Union, and XINGO PARKS, a prominent agitator, will be tried. They were both arrested some time ago, and each placed under $5,000 bail. They are charged with inciting to riot, and, from the verdict and sentences pronounced upon men of only secondary prominence, we suppose that they will have to suffer severe penalties, especially as it is said a very clear line of evidence has been secured against them.

Foreign and Gas Coals are very quiet The shipments of gas coal being made are all on account of orders secured some time ago. We note the arrival, from Liverpool, of the bark *H L. Routh*, with 532 tons of gas coal, and 132 tons of house cannel, all on orders.

Freights from this port to Boston are very irregular; quotations of from $1@1 40 being given to us, $1 20@ $1 25 being about the ruling figures. At Baltimore and Georgetown, a great scarcity of vessels is reported, and freights are rather firm, but unchanged. A large fleet, however, is reported as on the way to these ports, which will result in giving an ease to the market similar to that which ruled two weeks ago,

Philadelphia Coal Trade.

June 18, 1875.

The strike in the Schuylkill Region is virtually at an end, and the men are dro ping in, one after another, at such a rate that it may be expected that the resumption will be general in that district by the end of next week. Receipts are very light so far; a good deal of cleaning up and fixing has to be done at many of the colleries.

Prices on board are expected to be announced very soon. Prices of Schuylkill for the city and line are as follows: At Port Carbon, Lump and Steamer, $2 50; Broken, $2 90; Egg, $3 00; Stove, $3 25; Chesnut, No. 1, $2 40; No. 2, $2 15; Pea, $1 25. These prices are announced to be for June and July.

Freights remain at $1 50 to Boston, and as low as last quoted to Southern ports; but a rise is expected when coal arrives freely. It is expected that very little of the domestic sizes of White Ash will reach tide water for a while—a vacuum having to be be filled first by giving to every dealer in the city and line an assortment to enable them to start deliveries.

Wholesale Prices of Anthracite Coal f.o.b., at the Tide Water Shipping Ports per ton of 2240 lb.

The following prices comprise only those of the Lackawanna, Scranton and Pittston Companies, for the month of June. Rates of all the other companies are in abeyance as yet.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
Wyoming Coals.						
Lackawanna and Scranton at Elizabethport and Hoboken..	4 90	5 00	5 10	5 25	5 70	4 70
Pittston at Newburgh	4 85	4 85	4 95	5 05	5 55	4 60

Pittston coal is delivered to carts in New York or Brooklyn at 65 cents per ton in addition to the above rates.

	Per ton.
Freight from Hoboken and Weehawken to New York	40c.
" " Elizabethport & Port Johnston to N. York.	45c.
" " South Amboy to New York	50c.

Freight on Lackawanna coal from Rondout to New York, by boats or barges of the D. and H. Canal Co. 50c. per ton.

Wholesale Prices of Bituminous Coal.

Domestic Gas Coals.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in NewYork.
Westmoreland and Penn. at Greenwich, Philadelphia	$5 20	$6 50
" " at S. Amboy	6 00	6 50
Red Bank Cannel Pa. at Philadelphia	8 00	8 50
" " South Amboy	8 50	....
" Orrel	6 00	6 50
Youghiogheny, Waverly Co., at Baltim.	5 00	6 50
Despard, West Va., Nominal	4 75	6 50
Murphy Run, West Va., at Baltimore	4 75	6 50
Fairmount, West Va., " "	4 75	6 50
Newburgh Orrel, Md. " "	4 75	6 50
Cannelton Cannel, W. Va., at Richmond.	9 50	11 00
" Splint, " "	5 00	6 50
Peytona Cannel, " "	9 50	11 50
Straitsville " at Sandusky, O	3 25	10 00

Foreign Gas Coals.

	Sterling.	Am. cur'cy.
Newcastle, at Newcastle-on-Tyne	10/0@12/9	6 50@ 7 00
Liverpool House Orrel, at Liverpool	26/	13 00
Ince Hall Cannel "	47/	18 00@20 00
" Gas Cannel "	30/	12 00
Scotch Gas Cannel, at Glasgow, nominal,	25/	7 50
	Gold.	
Block House, at Cow Bay, N. S.	2 00	5 50
Caledonia, at Port Caledonia	1 75	5 25
Glace Bay, at Glace Bay	1 80	5 50
Lingan, at Lingan Bay	75	....
Sydney, International and Reserve mines, at Sydney	2 00	5 50
Pictou, Albion & Vale mines, at Pictou.	2 25	5 75

Steam and House Coals.

Broad Top, at the mine, $1 25; at Amboy	4 75@5 00	5 25@5 50
Cumberland, at Georgetown and Alexandria, Va	4 00@4 25	....@....
Cumberland, at Baltimore	4 15@4 50	5 75@6 25
Clearfield, "Derby," "Kittanning," "Sterling," and "Eureka," at the mines, $1 25; at Greenwich, Phil...	4 60	5 65
James River, carbonite, Richmond, Va.	....	....
" bituminous, "	....	....

Retail Prices in New York.

Anthracite.

Per 2000 lb.	Grate and Egg.	Stove.	Chestnut.
Pittston coal, in yard	$6 20	$6 40	$5 60
*Lackawanna coal, delivered	6 75	7 00	6 25
Wilkes-Barre, "	6 50	6 75	6 00
Lehigh & Locust Mountain, del'd	....	....	....
Schuylkill Red Ash, del'd	....		

The Cost of delivering Pittston coal ranges from 40 cts. to $1 per ton, according to distance from the yard.

* Lackawanna grate is quoted 25c. per ton less than egg.

Bituminous.

Liverpool House Orrel, delivered, per ton of 2000 lb	$23 00
Liverpool House Cannel " " "	25 00
American Sterling " " "	13 50
American Orrel " " "	15 00@16 00
Red Bank Cannel " " "	14 00
Carbonite " " "	12 00
Cumberland " " "	9 00

Baltimore, Md. June 15, 1875.

Reported by our Special Correspondent.

ANTHRACITE.

Wholesale or Trade Prices per 2240 lb.

Wilkes-Barre "Lee" or "Diamond," Pittston and Plymouth. White ash.	In cars at depot.	By boats afloat.
Lump and steamboat	$5 35	$5 20
Broken	5 35	5 20
Egg	5 05	5 30
Stove	5 80	5 65
Shamokin, (red or white ash), and "Boston," freeburning white ash,		
Egg	5 05	5 50
Stove	5 80	5 65
Lykens Valley, red ash,		
All sizes	5 05	5 72

From wharf or yard, wholesale, 50@75c. additional.
By retail, all kinds and sizes, per 2240 lb. $6 75@7 75.

BITUMINOUS.

George's Creek and Cumberland f. o. b. at Locust Point	4 35	4 50
West Virginia f. o. b. at Locust Point		5 50
Youghiogheny Gas, f. o. b. at Locust Point		5 50
Swanton Coal, George's Creek		4 40

Boston. June 15, 1875

Reported by our Special Correspondent.

CARGO PRICES TO TRADE.

Lingan coal	$ 5 75	Westmoreland and Penn.	7 25
Caledonia	5 00	Waverly Co.'Youghiogh'y.	7 25
Pictou	6 15	Cannelton Cannel	11 75
Block House	5 60	Cumberland	6 25@ 6 50
Red Bank Cannel	10 00	Anthracite	6 50@ 7 25
Glace Bay	5 00	" retail	7 50@ 8 00
Sydney	7 00		

The *Commercial Bulletin* says:

"Coal is in small demand, and, with heavy receipts and the prospects of an early termination of the strike in all the regions, prices are weak. Nova Scotia coals are arriving slowly, but the demand is light. Cumberland is arriving quite freely, but mostly on orders. Pennsylvania and Westmoreland gas coals are also in large receipt. Freights rule at $1 40@1 50 from Philadelphia, and $1 50@1 60 from Baltimore.

"Total receipts for the week—37,493 tons domestic and 791 foreign, against 26,155 tons domestic and 1,015 foreign for the corresponding week last year. Total receipts since Jan 1, 231,922 tons domestic and 2,669 tons foreign, against 333,690 tons domestic and 6,694 tons foreign for the same time last year, and 327,985 tons domestic and 10,336 tons foreign for the same time in 1873."

Buffalo, N. Y. June 15, 1875.

Reported by our Special Correspondent.

Prices free on board vessels here are as follows:

ANTHRACITE.

	Afloat.	F. O. B. Vessel.	Retail. Deliv'd.
Grate	....	$6 20	$7 00
Egg	....	6 20	7 00
Stove	....	6 45	7 45
Nut	...	6 40	7 20

Very little of any coal is arriving here at this time, and trade is very dull. Freights to Chicago are 50c. per ton free in and out. Many vessels are laid up, as little of any grain is moving.

Chicago, Ill. June 15, 1875.

Specially reported by Messrs. RENO & LITTLE, Coal Merchants.

Retail prices per ton of 2000 lb. delivered to buyer.

BITUMINOUS.

Lehigh Lump	$10 75	Briar Hill and Erie	7 50@ ....
Lehigh prepared and car load lots	10 25	Walnut Hill (W.Va)	6 50@ ...
Lackawanna, Wilkes-Barre and Pittston*		Midway (West Va.)	6 50@ ...
		Cannel	8 00@ 9 00
		Blossburg	8 00
Grate, egg and chestnut,	10 00	Indiana Block	6 00
Stove or range	10 00	Hocking "Brooks"	6 00
		Wilmington and Illinois.	5 00

* 75 cents off these prices for car load lots to country dealers and manufacturers.

Cincinnati, O. June 15, 1875.

Reported by our Special Correspondent.

Per ton of 2000 lb.	Bush.	Ton.
Youghiogheny, or Pittsburgh, afloat	9½c.	—
Pomeroy coal	6½c.	—
Cannel coal	16c.	—
Semi Cannel	9½c.	—
The following are the retail prices delivered:		
Youghiogheny	— c.	$3 35
Pomeroy	— c.	2 75
Cannel	— c.	5 50
Kanawha Semi Cannel	— c.	3 35
Anthracite	9 50@10	
Foundry coke	—	—
Coke, hard and soft	10 c.	—

Cleveland, O. June 15, 1875.

Reported by our Special Correspondent.

Per ton of 2000 lb. f. o. b. vessels.

Youghiogheny, lump	$4 40	Columbiana	$3 00
Youghiogheny, nut	3 50	StripVein & Steubenville	3 30
Briar Hill, according to quality	$3 05 to 4 00	Mountain Blossburg (blacksmith)	5 40
Massillon	3 25	American Cannel Coal Co.'s Cannel	4 40
Hocking Valley	3 35		
Straitsville	3 35		

There are no changes to report in the coal market. Shipments are now being made regularly from the producing districts, and the Mahoning country, where the strikes were the most effective, is resuming work gradually with new people and with old, so it is expected that the whole producing region will soon be at work, and that the trade will soon be brought back to a basis which can be relied upon for a season's work, and that the sales will go along in the old-fashioned way.

This state of affairs applies particularly to coals handled for mercantile purposes. Furnace and rolling-mill men, who have interests in coal banks, and who propose to mine coal for their own purposes, have an abundance of labor, but not at Union prices. Still they do not seem to be without help, and but for the tyranny which is exercised over them by the officers who have been chosen to represent the Union, miners enough could be found every day to "go in" and do all the work required. —*Manufacturing and Trade Review.*

Connellsville. June 15, 1875.

Business during last week has improved somewhat on the previous report. The increase of shipments over the P. W. and B. Railroad, was 120 cars. There is little improvement in prices, but coke is firm at last week's quotations, with a tendency to improvement. We hear of sales at $2 90 on the yard, and $3@$3¼ per ton on cars. The feeling among operators is hopeful.

Detroit, Mich. June 15, 1875.

Specially reported by Messrs. ROBINSON & KEYS, Dealers in all kinds of coal.

Per ton of 2000 lb.

Lehigh Lump, per ton	$10 50	Blossburg	8 50
Lehigh " prep.sizes.	10 00	Briar Hill	7 50
Wilkes-Barre, Grate and Egg	9 00	Willow Bank	7 00
		Erie	7 50
Wilkes-Barre, Stove and Nut	9 50	Massillon	7 00

Erie, Pa. June 15, 1875.

Reported by our Special Correspondent.

Wholesale, per ton of 2000 lb. Bituminous f. o. b.

Briar Hill lump	$4 00	Beaver lump	$4 00

Indianapolis, Ind. June 15, 1875.

Specially reported by Messrs. COBB & BRANHAM.

Wholesale on board cars, and retail delivered to consumers.

Per ton of 2000 lb., bushel of 70 lb.

BITUMINOUS.

Sand Creek, per ton	$3 25	Peytona cannel, per ton.	7 25
White River, "	3 00	Indiana Cannel	6 50
Brazil Block, "	2 65	Hocking Valley	4 25
Highland, grate, "	2 60	Youghiogheny	4 75
Block Nut, per car	18 00	Blossburg (smithing)	6 50
Highland " "	18 00	Piedmont "	6 50
Block Slack "	17 00	Gas coke, per bushel	10

ANTHRACITE (Lackawanna and Wilkes-Barre.)

Grate	$3 50	Chestnut	8 40
Egg	8 50	Stove	8 65

Owing to the Miner's strike there is no Lehigh coal in this market.

Retail, per bushel, delivered.

Sand Creek	15c.	Block Nut, steam	8
White River	14	" Slack, "	7
Brazil Block	14	Peytona Cannel	28
Highland grate	14	Indiana "	24
Block Nut, domestic use	12	Youghiogheny	20
Highland Nut, " "	12	Blossburg	26
" " steam	8	Piedmont	26

GAS COKE (measured.)

Chushed	15c	Lump	12c

ANTHRACITE,

All sizes (Wilkes-Barre and Lackawanna), $10 per ton.

Louisville, Ky. June 15, 1875.

Specially reported by Messrs. BYRNE & SPEED.

The following are our retail prices:

Pittsburgh, per load of 1900 lb	$3 00	Kentucky lump, per load	
		Kentucky nut, per load	
Screened Raymond City	2 75	" Slack, "	
Pine Hill	2 75	City-made Coke, per bus.	
Buckeye Cannel	5 00	Pittsburgh, whsale, "	
Peytona "	5 50	Kentucky on cars, at wholesale per bushel	
Nut and Slack	2 25		
Pine Hill nut	2 25	Anth., per ton, $10 to $10 50.	

Milwaukee, Wis. June 15, 1875.

Specially reported by Messrs. R. P. ELMORE & Co.

Retail price per ton of 2000 lb.

Lehigh Lump	$10 00	Scranton	$9 50
Lehigh Prepared	10 50	Briar Hill, select	8 00
Lackawanna	9 50	Blossburgh	8 00
Pittston	9 50	Pittsburgh	7 00

New Orleans, La. June 15, 1875.

Our market is at a stand still for the present; holders of Coal having advanced their rates on account of the slim chances for water, while purchasers hoping in the direction of their interests, have concluded to wait a little while longer for the June rise, before laying in their supplies. A week or two will decide, when, if we have no water above, prices here will take a swoop upwards.

We quote:

Pittsburgh coal, retail, per bbl	65c.
" wholesale	40c.
" steamboats, per box	50c.
" to manufacturers, per bbl	60c.
" shipments, per hhd	$5 00
Anthracite, wholesale, per ton	none.
" retail, "	$12 50
Virginia Cannel, per bbl	90c.
Scotch " "	$1 00

Pittsburgh, Pa. June 15, 1875.

Per ton of 2000 lb. and Bushel of 76 lb.

Youghiogheny coal, ton,	$2 00	Pittsburgh retail deliv'd. per bushel	0@1c.
" coke, "	2 50		
Connellsville coal, "	2 50	Auth'cite on cars Lehigh	$7 75
" coke	$2 25@2 75	" " Wilkes-Barre	6 75
Pittsburgh coal	1 85		

Twenty-five to fifty cents per ton additional for delivery.

The *American Manufacturer* of June 16 says:

"COAL.—Our coal men have been disappointed thus far in respect to a June rise, but they have not given it up yet; there were some heavy rains during the past week, but not enough to bring about the much desired result. As stated in our last review, there is a large amount of coal ready to move as soon as there is water, and our merchants are anxious to get it out, to get it to Cincinnati, Louisville and other points where it can be disposed of. Prices are nominally unchanged, and may be quoted, delivered loaded in barges at bridge, at 5¼@5½ cents per bushel for lump, and about 3¾@4¼ cents for nut coal. In sellers' barges, with the privilege of using them, the cost would of course be greater, say ½ to ¾ a cent per bushel. The stock of coal in the Cincinnati and Louisville markets afloat is reported light.

"COKE.—The coke trade continues fairly active, all that can reasonably be expected, and better, if we mistake not, than it was this time last year; the consumption is evidently increasing, which is owing to its being substituted in place of coal by many of the pig iron furnaces, it having been demonstrated that in addition to working a better quality of iron, the cost is but little, if any, greater than that of coal. If this is correct we may look for an increased consumption from this onward, and the outlook therefore is more encouraging. Prices unchanged; we continue to quote at $2 75@$3 per ton, deliverable free on cars in Pit sburgh."

San Francisco.

From the *Commercial Herald* of June 3, 1875.

Imports from January 1st to June 1st:

Anthracite tons	6,159	English, tons	21,909
Australian, tons	37,878	Vancouver Island, tons	25,866

Coos Bay, tons	15,332	Rocky Mountain, tons	22
Cumberland, tons	5,039	Seattle, tons	18,552
Mt. Diablo, tons (4 mos)	51,612	Bellingham Bay, tons	4 240

The ship *Helicon* from New York is at hand with 411 casks Cumberland; *Cape Cormorin* from Newcastle (N. S. W.) brought 1,600 tons Wallsend, which is reported sold upon terms withheld. From the North we have the *Harvest Home*, with 978 tons Seattle: the *Harrison*, with 525 tons Renton, from Coos Bay, the *Eastport*, with 350 tons; besides a fleet of small schooners with same; the *Wellington*, 840 tons from Br. Columbia; *W. H. Meyer*, 375 tons Seattle: the *Lovett Peacock*, 450 tons same. The cargo price of Seattle to the trade is $9.25. The *Oregonian* has of late been publishing some items respecting the Coal supply of the Pacific Coast, from which we compile a few items: "The Nanaimo coal beds on Vancouver's Island have the precedence in time and value and convenience to market. The company now furnish at the ships about 300 tons per day from the old bed, which is three miles from the harbor and 1,200 feet deep They have found a new large vein, half a mile from the bay, at a depth of 170 feet, of equally choice coal. They propose to put 500 tons per day into the shutes when this vein is fairly opened. This coal is contracted to the shipper at $5.25, delivered in the shute. Coming southward, there is next the Bellingham Bay mine which is taking out 100 tons daily, and the present vein is expected to last four years; but another vein lies near, which perhaps will be opened sooner. The Skagit mine, also in Washington Territory, has only been opened for twenty feet, simply for testing its value. The mines around Seattle are turning out from 200 to 400 tons daily, and this can be indefinitely increased with better means of transportation to tide water. The Renton coal mine, opened near the Black River, turns out 50 tons of pretty good steam and domestic coal. The Talbot mine is just opened near the Renton, and its tests prove good for steam and for domestic use. The Clymer, or New Seattle mine, is just opened and tested, near the Talbot, with similar results. The Coos Bay coal fields of Oregon are rapidly being developed, and coal of lesser commercial value is constantly being discovered in other sections of that State. The new mines of Puyallup, 28 miles from Tacoma, are also developing the existence of a large area of coal, and a project is on foot for constructing a narrow-gauge railroad to bring the coal into market. This coal is free from sulphur trace, cokes well, gives abundant gas, proves equal to Cumberland for the blacksmith's forge, and superior for steal welding. Its vein casings are light fireproof sandstone, giving signs of belonging to the older and better coal measures Veins of anthracite have been discovered in the same region. The quality of the coal of this locality is equal to the Nanaimo, and it promises to be superior for blast purposes. The Tenino and Skookum Chuck coals, on the line of the Northern Pacific Railroad, are rather lighter and more sulphurous than those of Seattle. The same veins extend along the foothills of the Cascades in Oregon. They have been found about twelve miles east of Aurora, and in the Calapooia Mountains, and at Coos Bay. Doubtless the coal supply, in quantity and quality, of our North-west coast will equal all the demands for centuries to come. Experiments made with the coal from the new mines at Tacoma have resulted satisfactorily to those interested. The coal bears a strong resemblance to the famous Cumberland, so necessary among workers in iron. Reports from two of the local foundries that have used it say that it cokes quite as well and gives nearly the same amount of heat. A chemical analysis shows that it contains 1.40 per cent. sulphur. The best English coal .90 per cent. sulphur. There are vast deposits at Tacoma, and it is likely that the quality will improve as the mines are opened up."

The market is bare of Anthracite, which is now much called for. Pittston may be nominally quoted at $20; Lehigh, $25@$28 in lots; Cumberland, on the contrary, is quite plentiful, quotable at $18@$20, in bulk and casks. Australian continues in liberal stock, the dealers carrying large supplies. Cargo parcels of Sydney and Wallsend may be quoted at $9@$9.50. We quote Bellingham Bay at $8.50; Coos Bay, $10; California Mt. Diablo Steam, $6.25@$8.25 for fine and coarse respectively. Cargoes of Scotch and English Steam to arrive may be quoted at $9 50. West Hartly at the moment is scarce. The *McLeod*, 69 days from Sydney, brings 946 tons: and the *Sierra Nevada*, from Newcastle (N. S. W.), 900 tons Coal and 134 tons Coke, The bark *J. B. Bell*, is just at hand with 1,209 tons Seattle. The market at the close shows increased firmness; $9.50 offered for spot cargoes of Wal send.

Toledo, Ohio. June 15, 1875.

Specially reported by Messrs. GOSLINE & BARBOUR.
Per ton of 2000 lb. on cars.

Hocking Valley	$3 40	Massillon	4 20
Straitsville	3 40	Youghiogheny	5 00
Shawnee	3 40	Blossburg	7 50
" nut	2 90	Cumberland	7 50
Briar Hill	5 50	Connellsville coke	7 00

ANTHRACITE.

Grate, screened	$7 75	Stove, screened	$8 25
Egg, "	7 75	Chestnut "	7 75
Lehigh Lump	9 50		

40 cents to $1 per ton additional for delivery at retail.

Halifax, N. S. June 14, 1875.

There is no alteration in the prices of Coal since our last advice. Freights continuing much the same.
Prices per ton of 2240 lb. in gold.

Sydney (old mines)	$4 00	Little Glace Bay	3 50
Gowrie	3 50	Blockhouse	3 75
Victoria	3 50	Albion (at Railroad)	4 00

Montreal. June 15, 1875.

Specially reported by Messrs. ROBERT C. ADAMS & Co.
Wholesale per ton of 2240 lb.

Scotch Steam	$3 50	Cape Breton Steam	$4 50
Pictou "	5 00	Newcastle Smiths	7 00

Anthracite at retail, per 2000 lb., delivered.

Egg	$7 50	Chestnut	7 00
Stove	7 75		

Rates of Transportation on Anthracite Coal to Tide Ports.

Lehigh and Wyoming Coals. per ton of 2240 lb,	From Penn Haven.	From Mauch Chunk.	From Hazleton*	From Upper Lehigh.	From Ashley and Sugar Notch.
To ‡ Newark, N. J., via Central Railroad of New Jersey	2 83	2 67	2 86	3 18	3 39
‡ Mauch Chunk, Pa., via Central Railroad of N. J.	16	..	56	51	72
‡ Philipsburg, N. J.	1 09	93	1 34	1 44	1 65
‡ Elizabethp't, Port Johnston, Hoboken and South Amboy, N. J., shipping and wharfage 35c. add.	2 47	2 31	2 80	2 82	3 03
High Bridge, N. J.	2 40	2 20	2 80	2 79	3 09
Somerville and Raritan, N. J.	2 80	2 60	3 20	3 19	3 49
Elizabeth, Cranford, Westfield & Elizabethport, for consumption.	2 95	2 75	3 35	3 34	3 64
¶ Jersey City, N. J., and New York, via Morris Canal	2 85	2 35	3 17	3 24	3 54
Andover, via Delaware, Lackawanna and Western RR	3 30	3 10	3 70	3 69	3 99
§ Trenton, Somerset Junction and Greensburg, via P. RR. Belvidere Division	2 65	2 45	3 05	3 04	3 34
Trenton, for shipment, including shipping and wharfage	2 11	1 95	2 45	2 46	2 76

*Rates on line coal from Hazleton are 10c. per ton above these figures.

‡ The cost of unloading is to be added to these rates. No charge less than 4c. per ton will be made for any distance. Tolls from Mauch Chunk to Phillipsburg for way points will be $11 15 per ton.

§ Twenty cents per ton less when five cars at a time to one party. Provided that where the reduction makes the rate $1 a ton, or less, the rate will be $1.

¶ 20 cents per ton additional for transferring coal from boat to boat, and 30 cents per ton for reshipment of same from wharves.

Erie Canal.

	per 2240 lb.
Hoboken to Buffalo	75c.
" Rochester	70c.
" Oswego	65c.

The above rates are exclusive of harbor towing, trimming, unloading and tolls.

Delaware and Raritan Canal.

Per 2240 lb. Cargoes to exceed 110 tons.

From Fairmount to New York, towing limits within				53d st.	59c.
" Port Richmond	"	"	"	"	53c.
" "	"	"	Semi-bituminous coal,		63c.
" Philadelphia	"	Cumberland	"		51c.
" Greenwich	"	Bituminous	"		64c.

Freights.

Per ton of 2240 lb.

PORTS.	From Baltimore and Georgetown.	From Elizabethport, Port Johnson, South Amboy, Hoboken and Weehawken.
Augusta, Me	....	Rates generally advancing but very irregular.
Albany	....	
Amesbury, Mass	....	
Bangor, Me	2 00	
Bath, Me	1 80	
Baltimore	....	
Boston, Mass	1 75	
Bridgeport, Ct	1 50	
Bristol, Ct	....	
Derby	....	
Dighton	1 60	
East Cambridge	....	
Fall River	1 50	
Hackensack	....	
Hartford	....	
Hoboken	1 30	
Hudson	1 60	
Jersey City	1 30	
Middletown	....	
Mystic	....	
Newark	....	
New Bedford	1 50	
Newburyport	1 85	
New Haven	1 50	
New London	1 50	
Newport	1 50	
*New York	1 40	
Norfolk, Va	75	
Norwalk	....	
Norwich	1 70	
Pawtucket	....	
Philadelphia	85	
Portland	1 70	
Portsmouth, N. H.	1 85	
Providence	1 50	
Petersburg, Va	....	
Richmond, Va	90	
Rockport	....	
Saco	....	
Sag Harbor	....	
Salem	1 75	
Savannah, Ga	....	
Stamford	....	
Stonington	....	
Taunton	....	
Trenton, N. J	....	
Troy	....	
Warren, R. I	....	
Washington	....	
Wareham	1 75	
Wilmington, Del	85	

* The rate by barge to this point is $1 55.

THE BRITISH COAL AND IRON TRADES.

May 29, 1875.

North of England.—The demand for coal has not been quite so good, but most of the collieries have been well employed. There has been a very good foreign demand. Gas coals are being bought by southern and local gas companies, at 7/ 9d.@9/ 6d. at the pits Coke is quoted at 14/@16/, and special brands at 17/@17/ 6d. at the ovens. The demand for iron has somewhat fallen off, which was caused by heavy failures in the iron trade, and the near approach in values of Scotch and North of England irons. The general opinion appears to be that prices will recede still further, and considerable iron is being sold for future delivery based upon this opinion. No. 3 pig iron is quoted at 55/ and No 4, 53/ 6d., net cash and prompt delivery. There is a very fair amount of business doing in the finished iron trade, but the profits are very light and in some cases it is said losses are being sustained. Common bars are quoted at £8, and heavy rails at £7 2/ 6d.

Barrow-in-Furness.—There has been a falling off in the demand for all descriptions of Bessemer steel. The output of the furnaces is being restricted, and several of them damped down. The following are the quotations, although they are inclined to weakness: No 1 Bessemer pig, £4 5/; No. 2, £4 2/6d.; No. 3, £4; and No. 3 hematite, £4 2/6d.

Yorkshire and Derbyshire.—There is considerable falling off in the demand for coal, and even the foreign shipments are not up to the usual average of the season. It is a rare case where a colliery is working full time, and many are only working three and four days a week. Stocks are accumulating, and prices are by no means firm. Silkstones can be bought at 12/6d @13/, and best Barnsley softs at about 11/ per ton. The iron works of this district are well employed, with a falling off in the demand for rails. At Sheffield, the Bessemer works are turning out more material than for some time past. Cast steel is in slightly better request.

Manchester.—There is a fair amount of business doing in this district. House coals are rather quiet, and stocks are accumulating, but so far, they are comparatively light, not being near so great as at this time last year. Prices are without material change. The depression in the iron trade is increasing, and an uneasy feeling has been created by the recent failures, which it is feared may be followed by further embarassments. Nominally, makers' prices of pig iron are unchanged, but there is a disposition among middlemen to get hold of orders at almost any price, and there is generally a weaker tone to the market. Finished iron prices remain tolerably steady. Ordinary bars are quoted at £8 10/@£8 12/6d. per ton The works, however, are only very moderately employed, with but little new business coming to hand.

South Staffordshire.—The trade of this district has been much disturbed by the late failures in the iron trade, although not directly affected. Prices continue about as heretofore, and are as follows: Common cinder pigs, £3@£3 5/; medium mixed cinder and mine, £3 17/ 6d.; best native all-mine pig, £5@£5 10/; Lilleshall cold-blast pig, £6 10/ per ton. The number of furnaces blowing is 80, or an increase of one since last week. There is a very good demand for sheets, but with this exception finished iron is inclined to weakness, common unmarked bars being offered at £8 7/6d., or a decline of 2/ 6d. since last week. The coal trade is quiet with considerable underselling among the small coal owners.

Monmouthshire and South Wales.—The strike is fully ended and the men all axious to resume work at a reduction of 12½ per cent, which is the rate agreed upon. The collieries, furnaces and rolling mills are being put in working order as fast as possible, and work will very soon be resumed, although it is very doubtful if steady employment can be given for a long time, as trade has been diverted and orders are not coming to hand in great abundance. Some of the shipping ports are doing a good business in coal under low rates of freight, but it is anticipated that stocks will soon accumulate and prices be reduced. Rails are without change in price, but slightly improved in demand.

Scotland—Contrary to expectation, there has been another very considerable decline in the prices of warrants, induced partially, it is believed, by disquieting rumors regarding anticipated failures in London. The market has been very dull during the entire week, and business extremely limited. Tuesday's market was exceedingly sluggish, a few sales having been affected in the morning at 58/., with a slight improvement in the afternoon to 58/9d. Four years have elapsed since prices were so low as they are at this moment. Warrants were selling in the summer of 1873 at close upon 50/. more than the present rates; and twelve months ago they were 25/. higher. If an average of the last twenty years were taken, it would be found that the prices current just now are most remarkably and exceptionally low. There are still hopes, however, that things are getting to their worst, when they will begin to mend, and this impression is strengthened by the revival of the malleable trade. The principal makers' brands have also fallen in value since last week in nearly equal proportion with warrants, the quotations being as follows:—G. m. b. at Glasgow, No. 1, 61/.; No. 3, 59/; Gartsherrie, 66/6d. and 62/6d. Coltness, 68/6d. and 62/6d.; Summerlee, 68/ and 63/; Langloan, 65/6d. and 62/6d.; Carnbroe, 64/ and 61/; Monkland, 62/ and 60/; Clyde, 62/6d. and 60/; Govan, at Broomielaw, 62/ and 60/; Calder, at Port-Dundas, 68/ and 63/; Glengarnock, at Ardrossan, 69/ and 62/; Eglington, 61/ and 59/; Dalmellington, 61/ and 59/; Carron, at Grangemouth, 70/; Shotts, at Leith, 66/6d. and 63/.; Kinneil, at Bo'ness, 65/ and 62/ The shipments of pig iron from Scotch ports during the week ending 29th ult., amounted to 9,768 tons, showing an increase of 2,752 tons over those of the corresponding week of 1874. The imports of Middlesbrough pigs at Grangemouth for the week were 2,700 tons, an increase of 750 as compared with those of the corresponding week

of last year. The coal trade is duller than for several weeks past, the demand having slackened with the advent of fine weather. The prices of smithy coals are maintained, as the better qualities of that class are at present rather scarce, but splint and Wishaw main are easier in price, other sorts being unchanged. The continual decline in the prices of coal and iron has left the miners no hope of bettering their present condition of poverty occasioned by the very small wages they are receiving, and the short time they are compelled to work on account of a superabundance of hands in the pits. In these circumstances many of the younger men are thinking of emigrating, and numbers have actually set sail for other countries, while others are leaving the mines, and seeking other kinds of employment.

IRON MARKET REVIEW.

New York.

FRIDAY EVENING, June 18, 1875.

American Pig.—There is no change observable in the demand for this article, and prices continue, as for some time past, quite nominal. The Lehigh furnace companies expect to be receiving an abundance of Lehigh coal soon, which will enable them to make a better and cheaper iron. We quote $26@28 for No. 1 foundry; $24@26 for No. 2; and $22@25 for forge.

Scotch Pig.—The steamship companies have combined and advanced the rate of freight from Scotland to this port, from about 3/ 6d. to 12/ 6d. per ton, and on the strength of which, the holders in this market became temporarily more firm in their prices; but, under advices of additional heavy failures in London, and in the absence of an important demand, it is impossible to see that they are, at this writing, more firm than at the date of our last. The latest cable advices quote the Glasgow market about 1/ lower than last week. We note sales aggregating about 100 tons of Eglinton at $30. We quote Eglinton at $29@30; Glengarnock, $31@32; Coltness, $32.

Rails.—There continue to be some inquiries for rails in this market, but we learn of no transactions. A small sale or two are reported to have been made by Pennsylvania mills, the particulars of which we did not learn. We quote iron at mills at $48@$50, and steel, $70@75.

Old Rails.—We are reported two small sales. There are some inquiries in the market that will probably result in business. We quote at $26 50@$27.

Scrap.—We do not learn of any transactions having taken place during the week. We quote at $31@$33 with a drooping tendency.

Boston. June 12, 1875.

Pig remains in a very listless condition, with the market in buyers' favor. There have been no receipts here for the past two weeks, but letters from New York offer to foundry men a miscellaneous line of warranted No. 1 at from $1 to $1 50 delivered here under our quotations. These values propose sales on thirty days' time from date of landing; the buyer's note to be given. These offers, while in no sense breaking the market, have a tendency to discourage buyers, giving them the impression that some of the larger holders in New York and elsewhere must be anticipating serious embarrassments about stock-taking time. One or two lots of hypothecated iron controlled by Boston parties may yet feel this influence. The note shavers of State and Devonshire streets consider $18 to $20 a prime margin for advances. This fact is hardly an index of market prices, but is given as of interest to foundry men.

Bar continues to have a small steady jobbing business on odd and regular assortments at $62@$63. A good deal of gossip has been occasioned by the action of one house which for a day or two secured the business of several of our largest machinists at prices varying ("so understood") at from $54 50 to $58. The sale appeared to be a clearing out; the assortment was not especially large, while buyers report they bought because the prices and sizes "were handy to have in the house." In common iron the market is stagnant, and quotations nominally from $54@$56.

Steel is having a slightly improved inquiry for machinery and small tool. The demand for sheet for boiler and fire-box purposes is moderate. We quote American tool 15@15½c; American machinery 9½@10c; do. cash tires 8½@12½c; Sweet's Excelsior Tire, 7@7½c; English Tool 16@17c.

Copper is very dull and prices are quite easy at the decline noticed last week. We quote 22¾@23c for spot; New sheathing 30c; Bolts and Braziers 31c; Yellow metal Bolts 28@29c.

Lead is dull and firm. We quote domestic 6c.; Foreign 6½c.; Antimony is without request, and quotes at 12c. gold per pound; Sheet and Pipe 9½c. c'y.; Tin-Lined Pipe 16½c.; Bar Lead 9½c., less usual trade or 10 per cent. discount.

Spelter is cheap and quiet. The Combination quote $7 25 currency 30 days, or $7 15 currency prompt cash. Silesian is quiet, quoting nominally $7 30 gold.

Tin is easy, business being exceedingly slack. Plates are quiet. We quote Straits 20; Banca 24½; Refined English 19½c. gold. Plates are active; We quote Charcoal I. C., $9 50@10; Coke $7 75@8; and Terne at $8 50@11 gold.—*Commercial Herald.*

Cincinnati. June 15, 1875.

Specially reported by Messrs. TRABER & AUBERY, commission merchants for the sale of pig iron, blooms, ore, etc.

Pig Iron has been dull during the past week, the demand being confined to small lots for immediate consumption. We quote:

CHARCOAL.

Hanging Rock, No. 1, Foundry	$28 00@29 00	—4 mos
" No. 2, "	26 00@27 00	—4 mos
" Mill	25 00@25 00	—4 mos
Tennessee No 1, Foundry	27 00@28 00	—4 mos
Tennessee. No. 2 "	26 00@27 00	—4 mos
" Mill	25 00@26 00	—4 mos
Missouri, No. 1, Foundry	@	—4 mos

STONE COAL.

Ohio No. 1, Foundry	26 00@27 00	—4 mos
" No. 2, "	25 00@26 00	—4 mos
Ohio Mill	25 00@	—4 mos
Missouri, No. 1, Foundry	28 00@29 00	—4 mos
" No. 2, "	27 00@28 00	—4 mos
" Mill	26 00@27 00	—4 mos

CAR-WHEEL.

Hanging Rock, C. B	45 00@50 00	—4 mos
Tennessee "	35 00@40 00	—4 mos
Missouri "	35 00@40 00	—4 mos
Alabama "	35 00@40 00	—4 mos

BLOOMS.

Charcoal	75 00@ 85 00	—cash

SCRAP IRON.

Cast	75c.@1 00	—cash
Wrought	1 25@1 50	—cash

Chicago. June 15, 1875.

Specially reported by Messrs. ROGERS & Co., dealers in Scotch and American pig iron. Quotations are as follows:

No. 1 Coltness	$46 00@	
No. 1 Gartsherrie	45 00@	
No. 1 Summerlee	44 00@	
No. 1 Glengarnock	42 00@	
No. 1 Eglinton	40 00@	
Warner's "American Scotch"	38 00@	
Massillon No 1 Foundry	35 00@	
No. 1 Grand Tower Mo. ores (Bituminous)	31 00@	
No. 2, " " "	29 00@	
No. 1 Mill	27 00@	
Union "A" 1 (Anthracite)	28 00@	
Union "B" 1 (Anthracite)	27 00@	
No. 1 Lake Superior (charcoal)	32 00@	
No. 2 Lake Superior "	30 00@	
No. 3 Lake Superior "	33 00@	
No. 4 Lake Superior "	35 00@	
Bessemer Steel Rails	76 00@	
New Iron Rails	52 00@	
Old Rails	28 00@	

Cleveland, Ohio, June 15, 1875.

Specially reported by Messrs. C. E. BINGHAM & Co., dealers in pig iron and iron ore;

We do not hear of any transactions in pig iron beyond the ordinary foundry demand, and sales seem mainly confined to every-day requirements.—*Manufacturing and Trade Review.*

No. 1, Lake Superior Charcoal	33 00@	
No. 2, " "	31 50@	
No. 3, " "	32 00@	
No 4, " "	33 00@	
Nos. 5 and 6 "	34 00@	
No. 1, Bituminous foundry	29 50@	
No. 2, " "	27 00@	
No. 1. " Gray Forge	26 00@	
American Scotch, No. 1, Cherry Valley	32 00@	
" " No. 2	27 50@	
No. 1, Massillon	31 00@	
B—1, "	29 00@	
No. 2, "	27 00@	

Indianapolis, Ind. June 15, 1875.

Specially reported by NELSON KINGMAN, broker and dealer in pig iron, etc.

Trade very dull at prices named below.

New Rails at mill	$56 00@58 00	
Old Rails "	28 00@30 00	
Hanging Rock Charcoal Pig No. 1 foundry	29 00@32 00	—4 mos
" " " " " 2 "	27 00@30 00	—4 mos
" " " Mill	25 00@28 00	—4 mos
Car Wheel C. B	45 00@50 00	—4 mos

STONE COAL.

Indiana No. 1 Foundry pig Red Short	30 00@33 00	—4 mos
" 2 " " "	28 00@30 00	—4 mos
" 1 Forge " "	@	—4 mos
" 2 " " "	@	—4 mos
Ohio No. 1 Foundry pig Cold Short	28 00@30 00	—4 mos
" 2 "	26 00@29 00	—4 mos
" Mill	25 00@28 00	—4 mos
" No. 1 Foundry, Neutral	30 00@34 00	—4 mos
" No. 2 " "	28 00@30 00	—4 mos
Merchant Bar	2 35c.	—3 mos
1st quality C. H. No. 1 Boiler Plates, per lb	5¼c.	—3 mos
1st " Com. Sheet, for No. 24, W.G. "	4 c.	—3 mos
1st " Charcoal Sheet " " "	6 c.	—3 mos
Best Bloom Galvanized Sheet, discount 20 per cent		—cash.
2dquality " " " 30 "		—cash.

f. o. b. in Indianapolis.

Louisville. June 15, 1875.

Specially reported by Messrs. GEORGE H. HULL & Co.

The market continues dull, with a strong tendency to inside figures. Dealers admit no material quotable change in price, but the demand is so light that the true state of values is not tested. The usual time, 4 months, is allowed on the quotations below.

HOT BLAST—CHARCOAL.

No. 1 foundry, from Hanging Rock Ores	$28 00@29 00	
No. 2 " " "	26 00@27 00	
No. 1, Mill, from " "	24 00@25 00	
No. 1, foundry, from Alabama, Georgia and Tennessee ores	26 00@27 00	
No. 2, foundry, from Ala., Geo'a and Tenn. ores	25 00@26 00	
No. 1, Mill, from " " " "	24 00@25 00	

HOT BLAST—STONE COAL AND COKE.

No. 1, foundry, from Hanging Rock ores	26 00@27 00	
No. 2, " " " "	25 00@26 00	
No. 1, Mill, " " " "	23 00@24 00	
No. 1, foundry, from Ala., Geo'a and Tenn. ores	26 00@27 00	
No. 2, " " " "	25 00@26 00	
No. 1, Mill, " " " "	24 00@25 00	
No. 1 foundry, from Missouri ores	27 00@28 00	
No. 2 foundry, from Missouri ores	26 00@27 00	
No. 1 Mill, from Missouri ores	26 00@27 00	

COLD BLAST—CHARCOAL.

Car Wheel from Hanging Rock ores	38 00@45 00	
" " Tennessee "	34 00@35 00	
" " Alabama and Georgia ores	36 00@38 00	
" " Kentucky ores	30 00@40 00	

Milwaukee. June 15, 1875.

The following are the present prices, per ton of 2,240 lb.:—

Frankfort L. S. Charcoal, No. 1	$30 00	
" " " No. 2 & 3	28 00	
" " " No 4 & 5	31 00	
" " " No. 6	35 00	
Mil. Anthracite L. S., No. 1	30 00	
" " " No. 2	28 00	
Wisconsin Iron, No. 1	26 00	
Mahoning Valley Bit's No. 1	32 00	
" " " No. 2	30 00	

Pittsburgh. June 15, 1875.

Specially reported by A. H. CHILDS, Esq., Commission Merchant for the sale of pig iron, blooms, ore, etc.

No. 1 foundry	$27 00@28 00	—4 mos
" 2 "	25 00@26 00	—4 mos
Gray Forge	24 00@	—4 mos
White and mottled	21 00@22 50	—4 mos

The *Commercial* says: "The sales reported below fall short of the week previous, but still they exhibit a fair amount of transactions, all things taken into consideration. The firmness noted in our last has been fully maintained, holders, particularly of favorite brands, not being desirous of forcing operations. The mills are still running. We could learn nothing in regard to their intention; after the first of the month it is very probable that they will continue to run for some time. The 'hot dollar' difficulty has been adjusted on a satisfactory basis.

"We are reported the following sales:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

400 tons gray forge	$24 00	—4 mos.
300 tons gray forge	24 00	—4 mos.
300 tons n. u. forge neutral	24 00	—cash.
250 tons gray forge	24 00	—4 mos.
250 tons gray forge	24 00	—4 mos.
200 tons gray forge	24 00	—4 mos.
200 tons gray forge	24 00	—4 mos.
100 tons close gray forge	22 50	—4 mos.
100 tons close gray forge	24 00	—4 mos.
100 tons white	21 00	—4 mos.

CONNELSVILLE COKE.

250 tons gray forge	$23 50	—4 mos.
200 tons gray forge	23 50	—4 mos.
200 tons gray forge	24 00	—4 mos.
100 tons gray forge	24 00	—4 mos.

ALLEGHENY COKE.

150 tons Red Bank	$25 00	—4 mos.

ANTHRACITE.

20 tons No. 1 foundry	$28 00	—4 mos.
10 tons No. 1 foundry	28 00	—4 mos.

CHARCOAL.

20 tons No. 1 Hanging Rock	$30@31	—4 mos.

SCRAP IRON.

"Since the resumption of the rolling mills, the demand for scrap iron has not been as active as for some time previous to that event; but at present prices there is a fair demand, and some mills are using it largely. For ordinary wrought scrap the market rules $28@30 per ton, and we are informed of transactions at the inside figure. Less is done in old rails and car wheels than formerly, and prices are nominal; we have $35@38 quoted to us for the latter. The receipts of scrap iron for the first five months of this year are remarkably large, aggregating 18,217 tons, as shown by the following statement:

	By rail, tons.	By river, tons.
January	2,350	.....
February	1,290	.....
March	3,070	1,970
April	4,540	1,135
May	3,290	572
Total	14,540	3,677"

The *American Manufacturer* of June 16 says:

"PIG IRON.—There is a continued fair degree of activity in the pig iron trade, all that can reasonably be expected, and while as yet there has been no quotable advance, the general tone of the market is firmer. It is true there have been some sales reported within the past few weeks at $25, 4 mos; one of 300 tons at $24, cash, but these were exceptional sales; the quality of the iron was better than that of ordinary forge, and in addition it was wanted for a particular purpose; however, while $24, 4 mos., is still regarded as the ruling price, sellers generally are now asking from $24 50 to $25, 4 mos. Commission merchants inform us that there would be no difficulty in placing a considerable quantity for future delivery at $24, usual time, but that there are no sellers. The market is in a peculiar and unsatisfactory condition. Manufacturers claim that the raw article is higher relatively than the product, and that to add to the cost of the former may cause some of them to shut down, as the competition is so strong that it is almost impossible, for the present at least, to put up prices for finished irons. Producers, on the other hand, allege that current rates do not more than cover actual cost of manufacture; and as the production is light and the stock very much reduced, they are pretty confident of being able to obtain an advance within the next few weeks. This is substantially the general position of the pig iron trade, so far, at least, as Pittsburgh is concerned; and while, as will be noticed, it is gradually hardening, and the general outlook warrants the prediction that there will be an early advance, it must also be admitted, in this connection, that the outlook at the present will not justify the mills in paying it. For foundry irons the market continues dull, although there is a firmer feeling in view of the diminished production.

"MANUFACTURED IRON.—Trade continues fairly active, almost, if not altogether, as much as is usual at this

season of the year; the best evidence of this is, that every mill, with one or two exceptions is in operation, many of them working up to their full capacity. Indeed, there is reason to believe that there never was more finished iron being made in Pittsburgh than at the present time, which goes to demonstrate beyond doubt that the cost of manufacture is less here than elsewhere, and that, in consequence, our manufacturers are in a position to meet successfully all competition. It is complained however, that prices are too low, that current rates afford but little, if any, margin for profit, and that while our manufacturers have plenty of business, they are not making much money. The great bulk of our trade at the present time is with the East, but it is expected Western orders will come forward more freely during July and August, and the indications are that the mills generally will run all Summer, excepting a few weeks in next month, when it is usual to stop and take stock and make repairs. Prices are unchanged, $2 20@2 25, Pittsburgh, and $2 35@2 40, Eastern classification."

San Francisco.

From the *Commercial Herald* of June 3, 1875.

The *Helicon* from New York, brought liberal supplies of assorted Iron, etc. The market is now fully supplied with Pig Iron: a portion of late imports placed in store The present spot price for Scotch and English is $41@42.50: American, $40@41. We continue to receive Yellow Sheating in suits by rail across the Continent as ordered. The market for manufactured Iron, etc, seems to be largely demoralized. Tin Plate is in improved demand. We quote Tin Plate, Coke, $9.25@10; Charcoal do. $11@11.50, according to brand; Charcoal Ternes $10.75@11: ditto IX, $12 50; Banca Pig Tin, 28c; Straits, do, 24@25c; Australian do, 23c. Lead of all descriptions is plentiful and cheap.

METALS.

NEW YORK, Friday Evening, June 18, 1875.

Gold Coin.—During the week past gold has ranged from 116¼ to 117¼, and closed to-day at 117¼.

Bullion.—Fine silver bar is quoted at $1 21@1 22, gold, per ounce, and fine gold bar, at par ($20 67, gold, per ounce) to ¼ per cent. premium.

Copper.—The demand from consumers continues quite light, the sales to dealers and consumers during the week have not aggregated over 300,000 lb. at 23c.@23¼c, which are the quotations to-day. Consumers are reported to have small stocks, while at the same time they find a small demand for their wares. The arrivals of Lake copper foot up about 2000 tons, but all went to the account of purchases made early in the season. To-day's cable information shows that the failures in London, yesterday, have had no influence on this article, but that Chili Bars are still quoted at £82 10/.

MESSRS. JAMES AND SHAKSPEARE, of London, under date of June 4, say: "In furnace material no actual transactions are reported, but it was rumored late yesterday that the smelters had taken a cargo af regulus, to arrive Swansea, at 17s. unit, of which, however no confirmation has yet been forthcoming. Bars are steady at the values ruling last week; sales since 28th ulto. have been only moderate, but holders are mostly out of the market, except at an advance on current quotations. Australian sorts are in tolerably fair demand; and outside brands, owing to their comparative cheapness, are beginning to attract consumers' attention. English is steady, and smelters asking full rates for raw descriptions. It will be seen from the tables given below, that the quantity of metal here and afloat has once more fallen below 30,000 tons; and, judging from past experience, there is every reason to believe that a further diminution will take place in the figures before the close of the year."

Stocks in England and France (reduced to *pure* Copper), also Chili chartered and afloat for same:—

	1875.		1st June.		
	1st Jan.	1st May.	1875.	1874.	1873.
	Tons.	Tons.	Tons.	Tons.	Tons
LIVERPOOL AND SWANSEA:					
Chili—in Ore, Regulus and Barilla	939	440	440	3,263	2,375
Chili—in Bar and Ingot	10,831	12,525	17,316	14,354	20,334
LONDON:					
Foreign Copper, chiefly Australian	4,492	7,635	8,107	6,902	6,091
English Copper	73	60	50	100	341
HAVRE:					
Chili—in Bar and Barilla	3,413	1,916	1,553	2,730	1,825
Other Foreign	950	550	230	168	100
ACTUAL STOCKS	20,758	23,126	22,696	27,517	31,046
Chili chartered and afloat	9,054	7,037	6,078	6,716	7,774
Gross Totals	29,812	30,163	28,774	34,233	38,820
Price of Chili Bars (G.O.Bs.)	£83¼	£83	£82½	£75	£83½

Deliveries from Stock in England and France:

	1875,	1874.	1873.
1st January to 31st May,	Tons 27,315	27,439	24,116
During May only	" 5,936	6,869	4,401

"The direct imports from the West coast of South America into England during the month of May were equal to 3,158 tons pure; into Havre, 1,124; during the same period 1,274 tons of other foreign copper entered the ports of London and Havre, making altogether a total of 5,556 tons. The mails received here from Chili during May advised charters for together 3,082 tons, against 3,729 tons during May, 1874, and 4,489 in May, 1873. During the present year, 19,189 tons have been so advised, against 20,115 tons in 1874, and 16,288 tons in 1873."

Tin. There is but very little business doing in this market in either tin or tin plates. Pig tin is a little more firm and may be quoted at 18½c.@19c. gold, for Straits, Refined and L. & F.; and 23¼c.@24c. for Banca. Charcoal tin plates, $8 25@$8 50; ternes, $7 87½@$8; coke tins, $7 25@7 50; and ternes $7. To-day's cable information quotes Straits in London at £84 10/, "with a strong upward tendency," and L & F., £90. Penang advices say, "market very strong at $22 50 per picul, with upward tendency. Large demand for England, with inquiries for America—several offers made, but refused." It is anticipated that the large failures during the past two weeks will result in several of the tin plate works suspending operations

MESSRS. JAMES & SHAKSPEARE, of London, under date of June 4th, say:

"English remains firm, and it is still impossible to obtain a prompt execution of orders. The deliveries of Foreign during last month were again very large, and when the figures were published a rather strong enquiry sprang up both for Straits and Australian; though, as most holders declined making sales, except at an advance in price, no important operations resulted, and the market relapsed into a dull and dragging condition, which lasted until yesterday, when it again rallied and closed with buyers at a slight advance from the lowest point."

The following statistics show the position of this metal:

	1875.		1st June.		
	1st Jan. Tons.	1st May Tons.	1875. Tons.	1874. Tons.	1873. Tons.
Stock of foreign in London	2,897	5,946	5,891	2,313	1,960
Banca in Holland (2d hands)	488	628	993	873	1,530
Billiton in Holland	1,055	953	752	1,065	385
Actual Stocks	4,433	7,527	7,606	4,321	3,875
Straits afloat for Europe	1,586	1,040	632	262	538
Billiton do. do.	699	700	582	699	495
Australian do. do. (estimated)	1,150	1,150	1,250	536	182
Gross totals	7,073	10,417	10,070	5,818	5,090
Price of Straits per ton	£95¾	£83¾	£83	£97	£135

Deliveries of Foreign Tin in London and Holland, including Australian in ore:

	1875. Tons.	1874. Tons.	1873. Tons.
1st January to 31st May	8,330	6,575	5,855
During May only	1,918	1,178	1,522

Lead.—The demand continues to be very small. The sales of the week under review will not aggregate over 100 tons, at $5 87½@$5 90, gold. Foreign continues, without business, at $6 75, gold. In another column we publish a description of the late discovery in the Eureka Consolidated silver mine, from which, if the estimates prove correct, we may anticipate an additional supply of lead, amounting to from 2000 to 2500 tons per month.

ERNST W. G. MURANT, Esq., of London, under date of June 4th, says:

"The top prices seem to have been reached for the present, a slight reaction being now expected as the demand hardly keeps up to the extent hoped for."

Spelter and Zinc.—Spelter continues very quiet at $7 15@$7 25, currency. There is nothing doing in sheet zinc, which is quoted at 8¼c.@8¾c., gold

Antimony is quiet at 13c. At London the quotation is £60.

Quicksilver.—This market is quoted at 80c., and San Francisco 65c.@70c. per lb. The latest London advices quote at £11 15/@£12 per flask, in store.

The San Francisco *Commercial Herald*, June 5, says:—The supply is only barely equal to the demand, causing much firmness on the part of holders. The overland demand for some time past has been quite liberal, causing steady prices to prevail—65@70c. We have been told of a purchase made here some weeks since of about 200 flasks that were delivered in London at £12 per flask. At this writing we are unable to give the overland shipments Eastward. They have, however, been quite liberal for months past—say for April and May about 1,200 flasks The receipts for the month of May aggregate 3,601 flasks, of which 303 flasks were received from coast ports and 3,298 flasks from bay points.

Our exports by sea for May were as follows;

To	Flasks.	Value.
China	1,082	$56,824
Japan	71	3,603
Mexico	125	5,823
Victoria	5	218
Australia	50	2,500
Totals	1,332	$68,960
Totals in May, 1874	351	36,185

The shipment per steamer *Alaska*, hence June 1st, were as follows:

To Japan.	Flasks.	Value.
Chy Lung & Co	6	$321 30
Mendelssohn Bros	15	800.00
To China.		
Ammon, Caspari & Co	100	5,000.00
Degener & Co	200	9,945.00
Fred. Iken	80	3,878.00
Cross & Co	120	5,967.00
Totals	521	$26,011 30

FINANCIAL.

New York Stocks.

June 18, 1875.

With the exception of a slight advance in N. J. Central and the Delaware and Hudson Canal Company, New York Stocks are lower. The market closed feverish yesterday, with a general decline in prices.

The difficulties existing between the Baltimore and Ohio R. R, and the Pennsylvania R R. Companies have been amicably settled, the arrangement is understood to include uniform rates between competing points, and to remain in effect for ten years. Each company appoints a board of arbitrators by which all differences are to be settled.

Thirty shares of the Manhattan Gas Light Company, par $50, sold at auction on the 15th instant, at 296½ per share.

Quotations and sales of stocks:

	Highest.	Lowest.	Closing.	Sales.
Pennsylvania Coal Co	—	—	—	—
Consolidation Coal Co	—	—	46	100
Spring Mt. Coal Co	—	—	66	—
American Coal Co	—	—	45	—
Maryland Coal Co	—	—	20	—
Cumberland Coal and Iron Co.	—	—	—	—
Del., Lack. & West. R.R. Co	118½	117¼	117¾	1455
New Jersey Central R. R. Co	110	107	110	3416
Delaware and Hudson Canal Co.	120	119½	120	88
Quicksilver Mining Co, pref'd	—	—	22	275
" " Common	17	16	16½	1000
Mariposa Land & Min. Co. ass. pd.	—	—	5	100
St. Louis & Iron Mountain R. R.	—	—	19½	100
Lehigh & Wilkes-Barre Coal Co	—	—	—	—
Manhattan Gas Co	.....		—	—
New York Gas Co	.....		38	150
Total Sales				6684
Sales for the week previous				11437
Decrease				4753

The following are the sales of bonds for the same period:

	Amount.	Price.
Del., Lack. & W. RR convertible,	2,000 at from	117¾ to 118
N. J. Central RR. 1st consolidated mortgage bonds	19,000 "	105⅝ " 107¾
St. Louis & Iron Mount'n 1st Mtg bonds	3,000 "	89 " 90
St. Louis & Iron Mountain, 2d Mtg. bonds	.... "	.. ".....
N.J. Central Con. Conv.	.... "	.. ".....
" " 1st Mtg. N	4,000 "	112 " 112½
Del. & Hudson Canal, 1st Mtg. Reg. bonds, 1891	.... "	.. ".....
Del. & Hudson Canal, 7s, 1884,	.... "	.. ".....
Del. Lack. & W. R. R., 2d Mtg.	.... "	.. ".....
C. & O. R.R. 1st Mtg. Coupon on	16,000 "	39 " 40
Total Sales	$44,000	

Philadelphia Stocks.

PHILADELPHIA, June 18, 1875.

The Philadelphia Stock Market closed firm yesterday, at a general decline from our quotations of the 10th instant. The transactions of stocks exhibit a decided increase over those reported in our last. In bonds we note generally lower quotations, with quite an increase of sales.

The Lehigh Valley R. R. Co. has declared its usual quarterly dividend of 2½ per cent., equal to $1 25 per share, payable on and after July 15th. The first instalment of ten per cent stock distribution is also payable on the 15th prox.; dividends may be applied to payments on new stock any time during July. It is rumored that the Reading R. R. Co. will make its forthcoming dividend eight per cent., instead of ten per cent., as heretofore. This action is said to be caused by the recent strike in the coal regions; nothing definite however, can be learned in regard to the matter, until after the meeting of the Directors on the 30th inst.

In conformity with the stipulations contained in the 6 per cent mortgage gold loan of $10,000,000, of 1874, of the Reading Railroad Company, one hundred bonds of $1,000 each, have been drawn, and will be paid at par on the 1st of July next, either at the office of the company in this city, or at McCALMONT BROTHERS & Co of London. Interest on these bonds will cease on the 1st of July next.

Sold at auction on the 15th instant, $8,000 1st Mtge. Coup. 7 per cent. bonds of the Emmaus Iron Co., endorsed by the R.R.R.Co., at 87¾.

Quotations and sales of stocks:

	Highest.	Lowest.	Closing.	Sales.
Reading R. R. Co	54	52½	54	9433
Lehigh Valley R. R. Co	63¾	60½	60¾	811
Little Schuylkill R. R.	51¾	50	50	9
Catawissa R.R.	—	—	20	100
" " Preferred	42	41½	41½	130
" " New Preferred	—	—	38	9
Huntingdon and B. T. R.R.	—	—	6	—
" " " Pref'd.	—	—	14¼	—
Minehill R.R.	—	—	54¼	11
Lehigh Coal and Nav. Canal	50¼	49¾	50¼	14853
Morris Canal	—	—	51	—
" Preferred	—	—	129	—
Pennsylvania Canal	—	—	—	—
Schuylkill Navigation Canal	—	—	7¾	—
" Preferred	—	—	14¾	185
Delaware Division Canal	—	—	51	40
Susquehanna Canal	—	—	—	—
Westmoreland Coal Co	—	—	80	—

Buck Mountain Coal Co.	—	—	—	—
Cambria Iron Co.	—	—	17	—
Locust Mountain Coal Co.	—	—	—	—
Emaus Iron Co.	—	—	—	—
Crane Iron Co.	—	—	—	—
Total sales				25,581
Sales for the week previous				11,969
Increase				13,612

Sales of the various bonds for the period under review have been as follows:

	Amount.		Price.	
Reading RR. 6s, 44.80	....	at	—	10 ....
Catawissa RR., new 7s	....	"	—	" ....
H and B. T. RR., 2d mortgage, 7s	1,000	"	103¼	" ....
Lehigh convt. gold loan	....	"	..	" ....
Pa. and N. Y. Canal, 7s	3,000	"	107	" ....
Schuyl. Nav. 6s, '82, ex. interest	6,000	"	80⅛	" 82⅛
L. V. RR. con. bonds	2,000	"	103¼	" ....
H. and B. T. 1st Con. 7s. bonds	....	"	....	" ..
R. C and I. Co. irregular mort. bonds, Brady Tract	....	"	..	" ....
Lehigh Nav. 6s. 1884, 206—67	....	"	102	" ....
Reading RR. debenture bonds	2,600	"	107½	" ....
" " G. M. 7s. Reg	5,000	"	105⅝	" ....
" " new convertible 7s	12,400	"	107¾	" 108
" " 6s, 93	1,000	"	103¾	" ....
Reading C. and I. Co. debenture bonds,	1,000	"	84	" ....
Reading C. and I Co. mort. bonds, Tamaqua Tract	....	"	..	" ....
Reading C. and I. Co. mort. bonds, St. Clair Tract	....	"	..	" ....
R. C. & I. Co., Wetherill tract	....	"	..	" ....
" " " " Locust Mountain Summit Improvement tract	....	"	..	" ....
R. C. & I. Co. Helfenstein tract	....	"	—	" ....
Lehigh Valley RR. 6s, reg.	....	"	—	" ....
" " " 7s	....	"	—	" ....
" " " con. mtge. 6s reg.	6,000	"	98	" 98½
Lehigh Coal & Nav. Co. 6s, gold loan	15,500	"	101	" 174¾
" " " " 6s, 1877	....	"	..	" ....
" " " " RR. loan	4,250	"	102½	" 102¾
Schuylkill Nav. 6s, '95	9,000	"	80¾	" ....
" " 7 per cent. boat loan	....	"	..	" ....
" " 6s, '72	1,800	"	96½	" 97
" " 6 p.c. Impvt. loan	500	"	93	" ....
R. C. & I. Co., Glentworth tract	....	"	..	" ....
Chesapeake & Delaware Canal, 6s	500	"	86½	" ....
Susquehanna Canal, 6s	2,000	"	80	" ....
Pennsylvania Canal, 6s	....	"	..	" ....
Shamokin Valley & Pottsville R.R., 7s	....	"	..	" ....
Del. Div. Canal, 6s	....	"	..	" ....
Morris Canal, 1st mtge. 6s	....	"	..	" ....
Total Sales	....	$73,256		

Gold and Silver Stocks.

SAN FRANCISCO, June 16, 1875.

The San Francisco Stock Market is irregular, with a general tendency downward Consolidated Virginia exhibits a decline of $25 per share compared with our last report. California is $1 per share lower, while Ophir is $8 in advance of our quotations of the 9th inst.

The Consolidated Virginia Mining Co. has declared its usual monthly dividend of $10 per share, aggregating over $1,000,000, payable June 11th.

The Sierra Nevada Mining Co has levied an assessment of $1 per share, delinquent June 3d. An assessment of $2 per share, amounting to $108,000, has been levied by the Silver Hill Mining Co., delinquent July 14. This stock was quoted at $11 per share on the 14th inst.

The Utah Silver Mining Co. has levied an assessment of $2 per share, amounting to $40,000, delinquent July 9th. The stock was quoted at $6 per share on the 9th inst.

The product of the Crown Point Mine for the year ending June 1, amounted to about 176,000 tons of ore, at an average value of $31.46 per ton; this company has paid $2,300,000 in dividends during the year. The total profit to the stockholders, since the opening of the mine in June, 1871, has amounted to $10,965,000.

Quotations June 16, 1875.

Gould & Curry	18	Overman	60
Savage	108	Raymond & Ely	40
Chollar Potosi	82	Eureka G. V.	7
Ophir	48	Best & Belcher	46
Hale and Norcross	39	Kentuck	14
Crown Point	30	Meadow Valley	6
Yellow Jacket	77	Alpha	17
Eureka Consolidated	52	Sierra Nevada	12
Belcher	27	Union Consolidated	7
Imperial	7	Mexican	19
Consolidated Virginia	383	Caledonia	18
California	58	Silver Hill	11

Copper Stocks.

BOSTON, June 16, 1875

Copper Stocks are firm, with a tendency to higher prices. The market has been very quiet during the week. We note recent sales of the National Mining Co. at $3 per share, and also of the Duncan Silver Mining Co. at 75c. per share.

Quotations are as follows:

Allouez	..	National	..
Calumet and Hecla Co.	153¾	Petherick	..
Copper Falls	..	Quincy	42
Central	31	Ridge	6½
Franklin	12	Rockland	1

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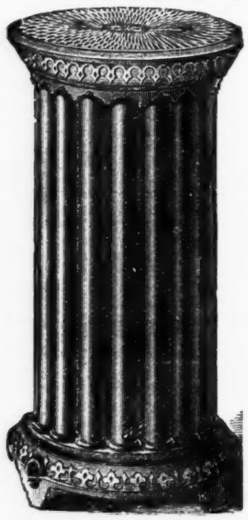

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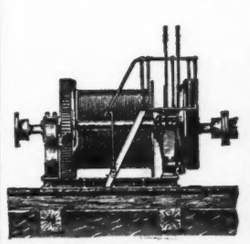

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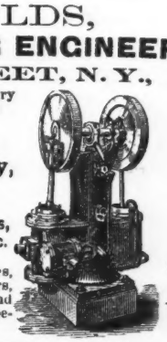

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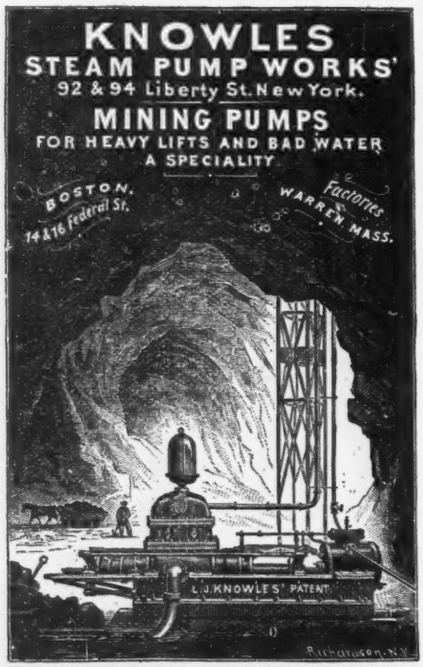

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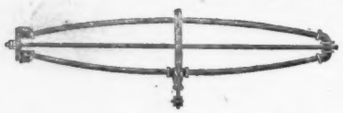

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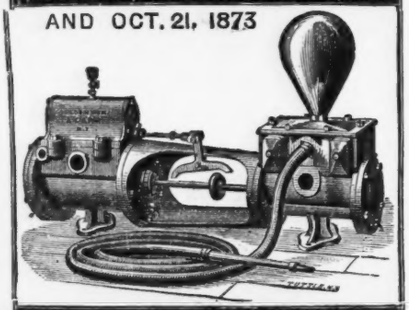

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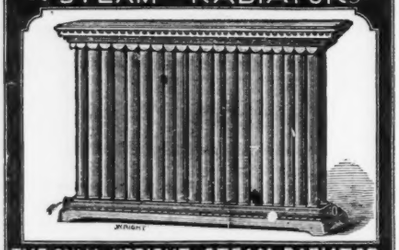

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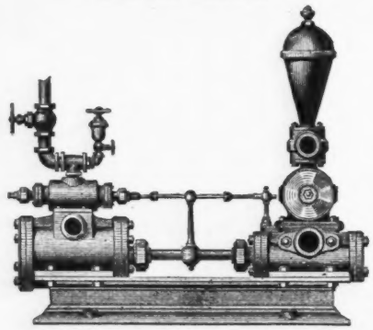

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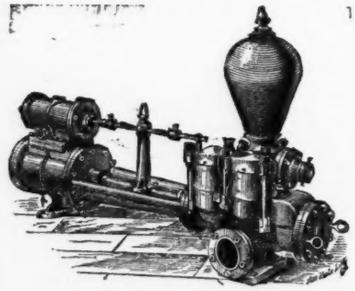

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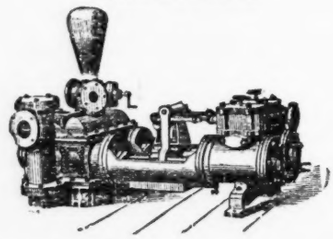

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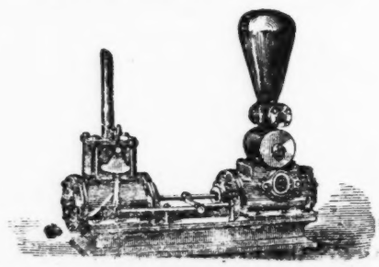

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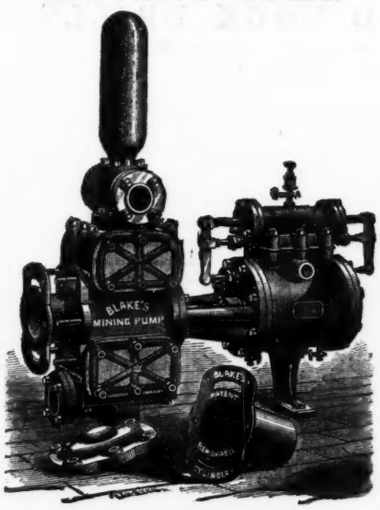

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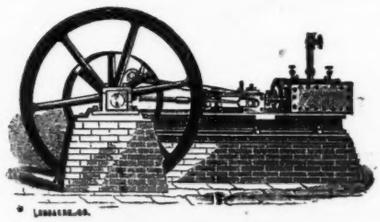

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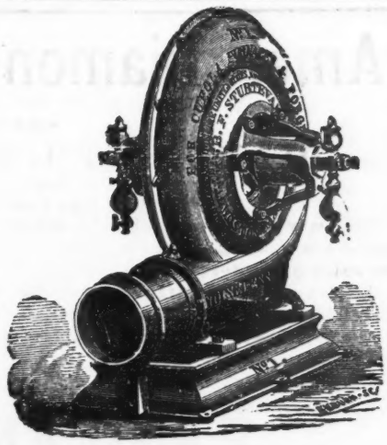

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